



# THE ASSAM GAZETTE

অসাধাৰণ

EXTRAORDINARY

প্ৰাপ্ত কৰ্তৃত্ব দ্বাৰা প্ৰকাশিত

PUBLISHED BY THE AUTHORITY

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No. 389 Dispur, Thursday, 24th August, 2023, 2nd Bhadra, 1945 (S. E.)

GOVERNMENT OF ASSAM

ORDERS BY THE GOVERNOR

DEPARTMENT OF HOUSING AND URBAN AFFAIRS

## NOTIFICATION

The 24th July, 2023

**eCF No. 340318/2023/103.-** In exercise of the powers conferred by the Sub-Section (2) and (3) of Section 10 of the Assam Town & Country Planning Act, 1959 (as amended) read with Rule 6 of the Assam Town and Country Planning (Publication of Master Plan and Zoning Regulation) Rules, 1962, the Governor of Assam is pleased to publish the following notice regarding the publication of the Final Master plan for Margherita.

### NOTICE FOR PUBLICATION OF THE FINAL MASTER PLAN FOR MARGHERITA

1. It is notified that the Final Master plan for Margherita is prepared by the Directorate of Town & Country Planning, Government of Assam and adopted by the State Government under Sub Section (2) and (3) of Section 10 of the Assam Town and Country Planning Act, 1959 (as amended) read with Section 6 of the Assam Town & Country Planning (Amendment) Rule, 1962 for the area described in the schedule below, is hereby published.
2. The Final Master Plan with all relevant papers and maps may be inspected free of Cost during the office hours at the office of the Director, Town & Country Planning, Assam, Dispur, Guwahati-6, the Deputy Director, Town & Country Planning, District Office- Dibrugarh, office of the Chairman, Margherita Municipal Board and Margherita Circle office. Copies of the Final Master Plan is also available in the office of the Director, Town & Country Planning, Dispur, Guwahati-6 and Deputy Director, Town & Country Planning, District Office- Dibrugarh for sale on payment.

**SCHEDULE**

District	:	Tinsukia
Revenue Circle	:	Margherita
Master Plan Area	:	17.94 km (1794.04) hectare)
Municipal Area	:	5.79 Sq. km (579 hectare)

**REVENUE AREA INCLUDED IN THE MASTER PLAN FOR MARGHERITA**

	Town & Village
Mouza	1. Margherita Town
	2. Alubari Gaon No.1
	3. Alubari Gaon No.2 (Part)
	4. Borgulai Application 11/1922-23
	5. Borgulai Gaon No. 1 (Part)
	6. Kumarpatty Gaon
	7. Lazum Gaon 2
Makum	8. Makum T.E. W.I. Application No.2
	9. Makum Pathar Gaon No. 1
	10. Makum Pathar Gaon No. 2 (Part)
	11. Makum Pathar Gaon No. 3
	12. Makum Pathar Gaon No. 4
	13. Namdung T.E. Grant No. 277 (A) Part
	14. Namdung T.E. Grant No.277 (B) 1st Part
	15. Namdung T.E. Grant No. 277 (F) NLR
	16. Namdung Gulai Gaon
	17. Namdung Gaon (Part)
	18. Namdung Banshbari Gaon
	19. Phaltu Gaon

**C DESCRIPTION OF BOUNDRIES**

North	:	Dihing Tea Garden, Chota Puwai Grant P.P. No. 75/2, No.2 Makum Pathar (other part).
South	:	Grant No. 112/109 Part-1 NLR Namdung T.E. Gr. No. 277 (c) NLR Namdung T.E. Gr. No. 277 (F) NLR (other Part).
East	:	No. 1 Borgulai Gaon (other part) Namdung Gaon (other part) Alubari Gaon No.2 (other part), Buri Dihing River.
West	:	Segunbari Tea Estate, Buri Dihing River

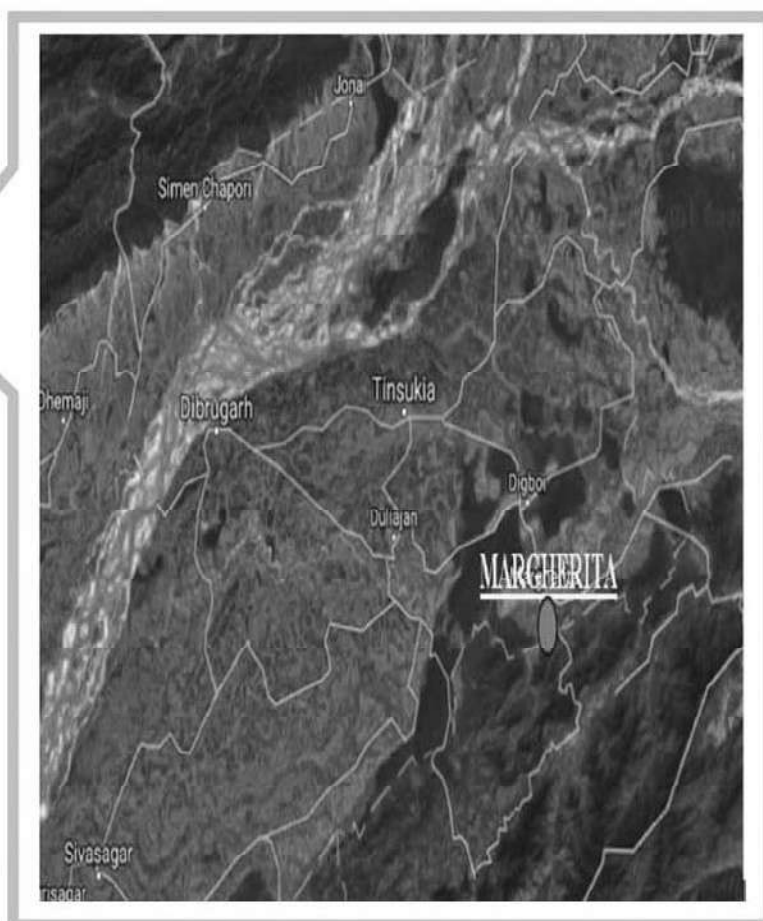
**KAVITHA PADMANABHAN,**  
Commissioner & Secretary to the Government of Assam,  
Department of Housing and Urban Affairs,  
Dispur, Guwahati-6.

## CHAPTER - 1

### 1. INTRODUCTION TO MASTER PLAN AREA

#### 1.1 Location

Margherita is a small town of Tinsukia district. The town is surrounded by hills, tea gardens, forest and Buri Dihing river and the National Highway 38 (old) & 315 (new) is passing through it. Margherita town is situated at a distance of 49 km. south-east of Tinsukia town, 97 km. from Dibrugarh town and 545 km. from state capital Dispur. Its geographical location is  $95^{\circ}41'$  (E) longitude and  $27^{\circ}17'$  (N) latitude and is situated above 139.35 meter mean sea level (MSL) .

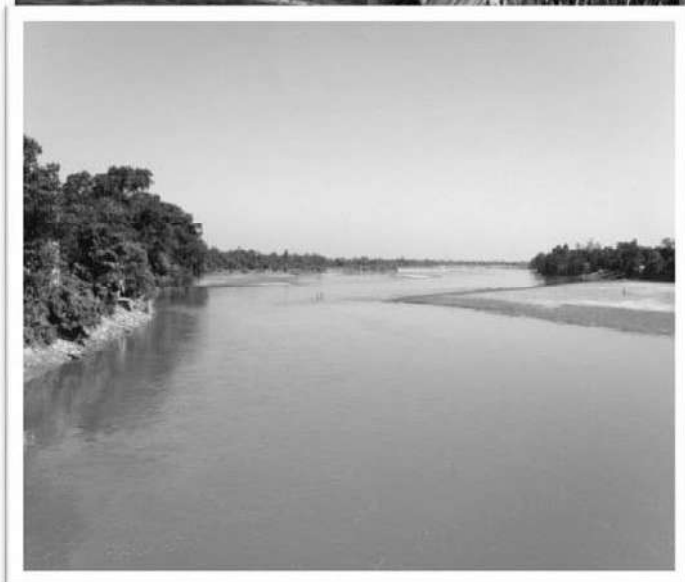


Margherita, in addition to its importance as Sub-divisional headquarter of Tinsukia, was originally an industrial town. Margherita is able to attain a place in the map of Assam as an industrial town due to the development of coal, wood and tea industry set up by A.R & T.C in the last century. The first crude Oil Refinery was set up at Margherita and the Assam Oil Company Refinery set up at Digboi at a distance of 15km. from Margherita has raised the importance of this town which is further strengthened due to the fact that Margherita is the gateway to some of the districts of

Arunachal Pradesh. A very prominent landmark of Margherita is the existence of Stilwell road built in 1942, connecting China. However, it is closed for transport. The Margherita will emerge as an important and vibrant town of Assam if Stilwell road is reopened.

### 1.2 Regional Setting

Margherita region falls in the North-eastern part of India in the Upper Assam Valley. The Master Plan area is situated on a flat land with slight slopes towards south upto the river Buri Dihing coming from Digboi side and after crossing the river the slope is towards North West. The river Buri Dihing flowing through the town, divides Margherita Master Plan Area in to two parts. The presence of good soil on the bank of river Buri Dihing and with sufficient rainfall it has been conducive to a rich growth of vegetation in this area.



### 1.3 Brief History of the town

Earlier Margherita was known as Makum. The south bank of Makum was wide open with jungle without habitation up to the middle of the 19<sup>th</sup> century. It was the only suitable location for the Railway station and for the Assam Railways & Trading Company's headquarter office and the ancillary buildings for staff and workshop, so as to facilitate movement of men and materials by steamer to and from Dibrugarh and, then by rail, become easy. The name of the Railway Station was controversial as there are two maxims for this. It is said that it was Mr. Chevalier Roberto Paganini, the veteran Italian engineer in charge of the Railway Station construction project, who dedicated the station in the name of the Queen Margaret of Italy. Again, some others say it was dedicated in memory of the only daughter Margaret of Dr. John Berry White, the then civil surgeon of Upper Assam district at Dibrugarh. The girl is said to have died at this place when Dr. White was here. Margaret was later converted to Margherita owing to slip of tongue and become more popular in every mouth and correspondence undermining Makum to go into oblivion. So, Margherita was born first as a railway station. The black diamond and liquid gold received more attention over the name of the railway station in subsequent years.



During the British rule, tea gardens were set-up in Margherita in the last quarter of the 19<sup>th</sup> century. The first ever railway line in Assam, i.e. Dibru - Sadiya line from Dibrugarh to Ledo was set up in February 1884, with a bridge over the river Burhi Dihing at Margherita. This railway line connects Margherita to Dibrugarh town through Tinsukia. The first plywood factory in Assam was set-up at Margherita in the year 1924. During 1960 to 1980, 16 plywood factories of small and large scale were set up at Margherita and this industry became a profitable industry in the region. But, at present, due to ban on tree - felling, most of these industries have closed down.



The road from Makum railway junction towards Margherita was converted into a National Highway 38 around 1960 and a R.C.C. bridge over the river Buri Dihing at Margherita was built in 1974. In 1975, a separate constituency numbered 124 for Margherita was formed.

The Automatic Telephone Exchange was established at Margherita in 1966 and the same was converted in to an Electronic Exchange in 1993. A Thermal Sub-station was set up in the year 1961. To meet the growing demand of the public, a T.V relay center was established at Margherita in February 1996. After declaration of Margherita as a Sub-division in the year 1989, the town has been growing administratively and tertiary services are coming up to serve the public of the town and its suburbs. Margherita has also All India Radio relay station known as Akashbani Margherita. It broadcast on FM frequencies. The Margherita Town Committee was established in the year 2003.

#### 1.4 Climate

The climate of Margherita is particularly different in comparison to the other towns of upper Assam. The temperature of Margherita is slightly hot due to presence of many coal fields in its suburbs. In the recent past the climate is moderately hot and humid only for three months from June to August. But in recent years due to global warming the hot weather begins from the middle of April and continues to the middle of October. The minimum and maximum relative humidity of Margherita varies from 65% to 90%. The annual minimum and maximum temperature varies from 7°C to 38°C. The mean monthly temperature is the lowest in December-January and the highest in June-August.

The average annual temperature is 23°C. Since the climate is tropical, the rainfall is heavy as in the other parts of the state. The average rainfall of the region is 2517mm. The rain associated with monsoon sets in by the middle of May reaches its peak in July and continues till the end of September. The relative humidity during the rainy season is almost 90%. The prevailing wind direction is east and north-east. The velocity of wind is about 5-7 km per hour. A medium range of fog is also experienced in the region during the winter season.

### 1.5 Topography

Margherita is located at 27°.17'N, 95°.41'E / 27.28°N 95.68° E. It has an average elevation of 162 meters. The Buri Dihing River flows through Margherita. The Patkai hills are visible from the town.

### 1.6 Soil Condition

The top soil of Margherita adjacent to coal fields is degraded due to extensive mining and its subsequent activities. Most of the mining wastes are toxic in nature. These toxic substances are inherently present in the ore. These heavy metals leach out of the stored waste piles and contaminate immediate environment. However, some toxic chemicals are also found in waste, as they are added intentionally during extraction and processing. The major environment impacts due to coal mining are:- the changes in soil stratification decreased biotic diversity and alteration of structure and functioning of ecosystem. The land degradation due to coal mining leads to air and water pollution, and bio-diversity loss. In spite of that, the quality soil is good in the bank of the river and with sufficient rainfall in the region the soil is conducive for the growth of vegetation.

### 1.7 Settlement Pattern

The settlement pattern of Margherita is a mixed one. Due to the presence of tea garden and coal mining industry, workers from Bihar and Orissa migrated in to the region. The top officials of coal mining industry come from Northern India and a few of them ultimately settled in Margherita. The indigenous people of the state live both in urban and rural areas. A good number of Nepali, Bengali and Arunachali people also reside in Margherita.

### 1.8 Rural-Urban-Scenario

Margherita Master Plan covers an area of 17.94 sq.km. out of which the Urban and Rural area is 5.79sq.km. and 12.15 sq.km. respectively. As per 2011 census, the urban and rural population in the master plan area is 26914 and 21159 persons.

**TABLE NO :- 1**  
**URBAN & RURAL AREA POPULATION FIGURE**

Name of the Master plan Area	Category of Area	Area In sq.km	Population in 2011
Margherita Master plan	Urban	5.79	26914
	Rural	12.15	21159
Total		17.94	48073

### 1.9 Physical Growth and Expansion of the town

With the up gradation of Tinsukia Sub-division into a district on the 15<sup>th</sup> August, 1989 Margherita with its suburbs covering an area of 1223 Sq. km with three revenue mouzas 256 cadastral, 39 non-cadastral villages and with a population of about three lakhs was also upgraded into a sub-division from the same date. With the formation of the Sub-division a few number of Govt. offices including Judiciary according to the norms were established at Margherita resulting in to rapid physical growth of the town. The physical growth and expansion of the town mainly taken place for the collieries which was developed by the British and due to the existent of tea and small scale timber Industries in the region.

For planning purpose Margherita Master Plan Area is divided into the following zones:-

#### **A. The urban zone comprises of the following areas:-**

1. 10 wards under Margherita Municipal Board
2. Urbanized area adjacent to the 10 wards.

#### **B. The rural zone comprises of the following villages & tea gardens:-**

1. Alubari Gaon No. 1
2. Alubari Gaon No. 2 (part)
3. Borgulai Application 11/1922-23
4. Borgulai Gaon No. 1 (part)
5. Kumarpatty Gaon
6. Lazum Gaon No. 2
7. Makum T.E W.L. Application No. 2
8. Makum Pathar Gaon No. 1
9. Makum Pathar Gaon No. 2(Part)
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12. Namdung T.E. Grant No. 277(A) Part
13. Namdung T.E. Grant No. 277(B) 1<sup>st</sup> Part
14. Namdung T.E. Grant No. 277(F) NLR
15. Namdung Gulai Gaon
16. Namdung Gaon (Part)
17. Namdung Banshbari Gaon
18. Phaltu Gaon

### 1.10 Need of the Master Plan

Master plan is a statutory instrument for controlling, directing and promoting the sound and rational development/ redevelopment of an urban area with a view to achieving maximum economic, social and aesthetic benefits. The master plan generally indicates the manner in which the use of land in the respective area is to be regulated and also indicates the manner in which the development of land therein is to be carried out. A master plan is a scheme of arrangement of these, that is the master plan consists of co-ordinate plans of major streets, transportation facilities, parks, recreation facilities, schools, housing, public buildings, business and industrial areas- all arranged in such a way which would function most efficiently and economically and also enhance the aesthetic beauty of the town at the same time. It is also an important tool for guiding and regulating the growth of the town.

The concept of planning has evolved gradually through the changing demand of man and environment, but has assumed greater significance and wider connotation with the inception of the present century. The rapid pace of industrial expansion and urbanization has hastened the growth of urban centers. The forces operating behind urban growth namely social, cultural and economic have drawn people towards towns or cities. The trend of urban expansion in recent years is becoming more and more difficult to direct or to control. So in order to check the unplanned and haphazard growth of the towns, the principles of planning have been accepted as urgent and imperative.

A town is composed of land, buildings, people, utilities and services and transportation. It is a large configuration of more or less permanent settlers engaged in diverse economic activities. As a town grows, it attracts larger population; it enlarges the scope of their activities, while the complexity of living distorts the well-organized concept of the urban space organization.

The evils of unplanned growth of our towns have caused enormous problems such as shortage of living accommodation, traffic congestion, lack of sanitation and other community facilities and amenities. The growth of population and the potentiality of Margherita to be a commercially and industrially vibrant town in future had led the State Government to realize the importance of proper planned growth of the town and the preparation of the Master Plan thereafter.

**CHAPTER -2****2. DEMOGRAPHY****2.1 Total Population**

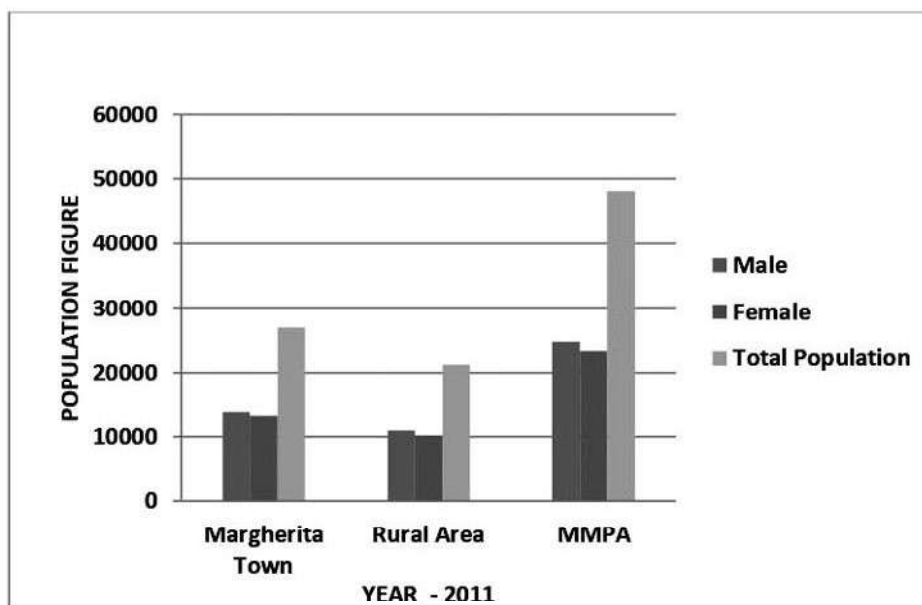
According to census of India 2011, the total population of Margherita Master plan area is 48073 persons, out of which 26914 persons live within the Margherita Municipal Board covering an area of 5.79 sq. km.

**2.1.1 Male and Female Population**

The details of Male and female population for the Margherita Master Plan Area (MMPA) is shown in the following table:

**TABLE NO: - 2**  
**MALE AND FEMALE POPULATION OF MMPA IN 2011**

Sl. No.	Name	Male	Female	Total Population
1	Margherita town	13777	13137	26914
2	Alubari gaon No.1	492	447	939
3	Alibarigaon No.2(part)	599	546	1145
4	Borgolaigaon No.1( part)	1567	1393	2960
5	Borgolai Application	250	253	503
6	Lazumgaon	719	696	1415
7	Margherita Kumar patty	120	112	232
8	Makum T.E, Application	219	224	443
9	Makumpathargaon no.1	1312	1230	2542
10	Makumpathargaon no.2(part)	529	497	1026
11	Makumpathargaon no.3	832	757	1589
12	Makumpathargaon no.4	667	604	1271
13	Namdung T.E Gr.No.277(A)-Part	565	595	1160
14	Namdung T.E Gr.No.277(B)-Part	1082	1035	2117
15	Namdung T.E Gr.No.277(F)-Part	627	637	1264
16	NamdungBanshbarigaon	388	212	176
17	NamdungGolaigaon	374	384	758
18	Namdunggaon (part)	314	329	643
19	Phaltugaon	287	265	552
	<b>Total</b>	<b>24720</b>	<b>23353</b>	<b>48073</b>

**FIGURE:-1****Male & Female population of MMP Area****2.1.2 Population Growth Rate**

Margherita was declared a revenue town in the year 1967. Margherita was declared as sub-division in the 15<sup>th</sup> August, 1989. It had only 9250 persons in 1971 and the population has increased to 21709 persons in 1991. According to 2011 census, the population of Margherita town is 26914, out of which the number of male population was 13777 & the number of female was 13137. According to 2011 census, the status of Margherita town changed to town committee comprising of 8 (Eight) wards. As per Government notification in 2018 the status of Margherita town committee changed to Margherita Municipal Board comprising 10 (ten) wards within the same area.

**TABLE NO: – 3****GROWTH OF POPULATION OF MARGHERITA TOWN**

YEAR	POPULATION	(%) INCREASE
1971	9250	---
1981	---	---
1991	21709	134.69
2001	24049	10.78
2011	26914	11.91

Source:- Census of India.

The decadal growth of population in the urban and rural areas of Margherita Master Plan area from 1971 to 2011 is shown in the following table:-

**TABLE NO: – 4**

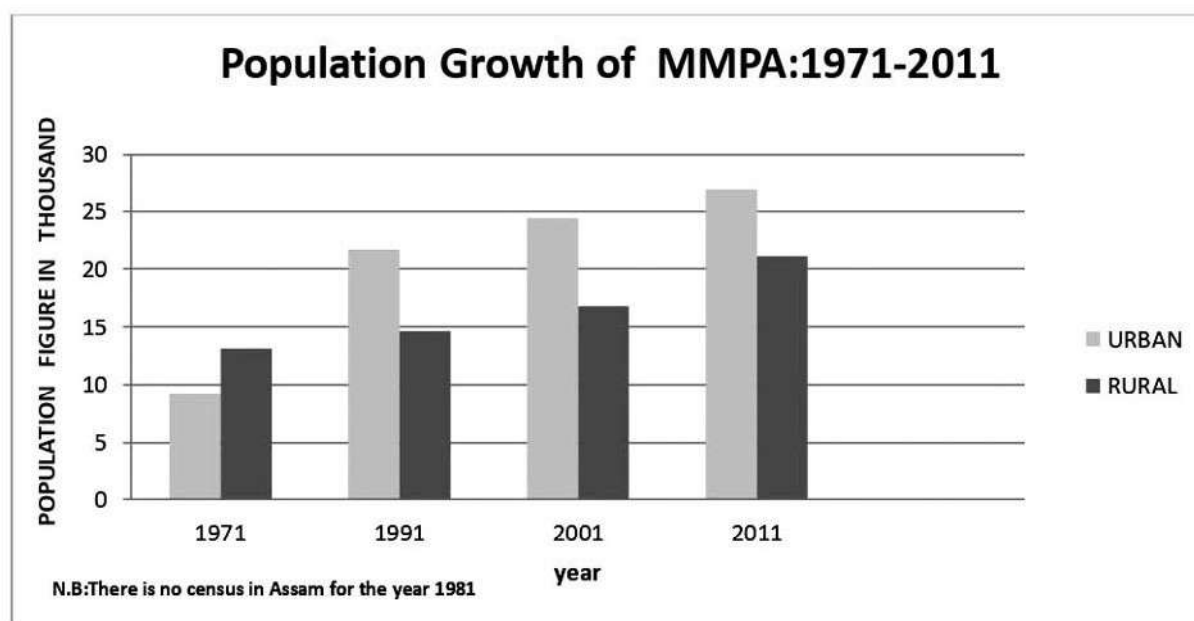
**GROWTH OF POPULATION IN MARGHERITA MASTER PLAN**

Zones	Year	Population	Increase of population	P.C. increase
Urban	1971	9250	--	--
	1981	--	--	--
	1991	21709	12459	134.69
	2001	24049	2340	10.78
	2011	26914	2865	11.91
Rural	1971	13105		
	1981	--		
	1991	14570	1465	11.18
	2001	16851	2281	15.65
	2011	21159	4308	25.56

Source:- Census of India, Assam.

The total population in Margherita Master Plan Area in the year 2011 is 48073 and the percentage increase from 2001 to 2011 is 17.53%.

**FIGURE:-2**



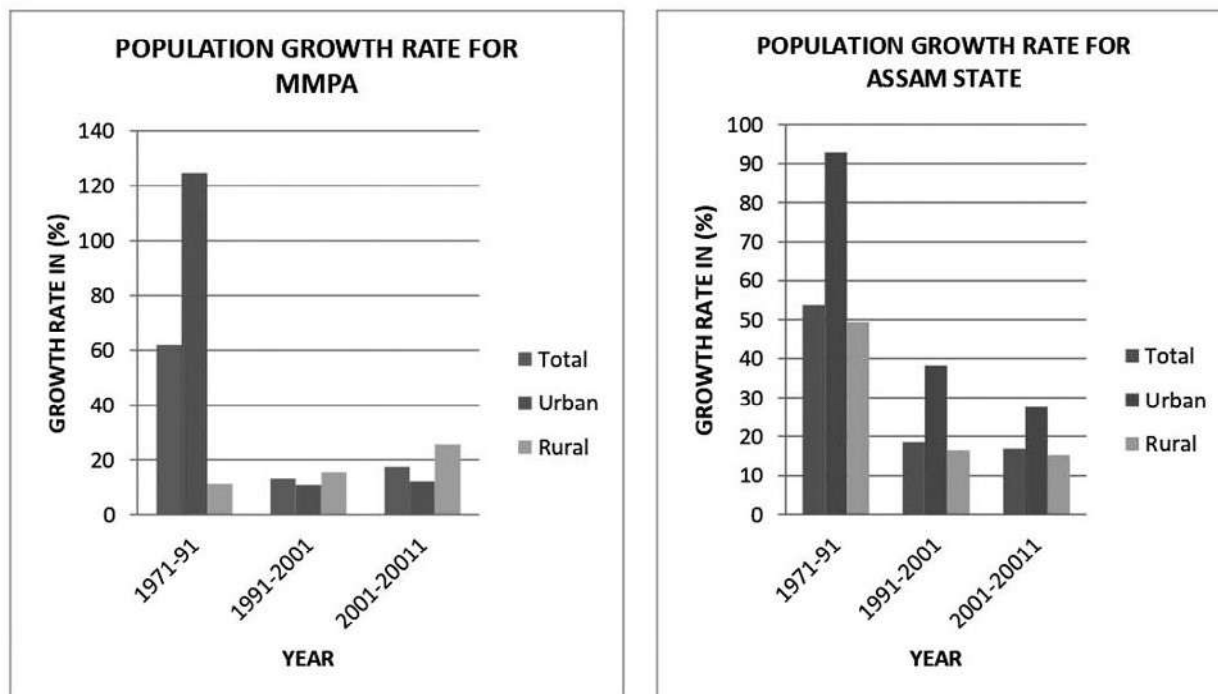


**TABLE NO:-5**

**POPULATION GROWTH RATE OF ASSAM AND MARGHERITA MASTER  
PLAN AREA :-1971-2011**

	POPULATION				GROWTH RATE IN %		
	1971	1991	2001	2011	1971-91	1991-2001	2001-2011
<b>Assam State *</b>							
Total	14.62	22.49	26.66	31.17	53.83	18.54	16.93
Urban	1.29	2.49	3.44	4.39	92.97	38.24	27.61
Rural	13.33	19.93	23.22	26.78	49.42	16.51	15.35
* Population in Millions							
<b>Margherita Master Plan *</b>							
Total	22.35	36.28	40.90	48.07	62.32	12.73	17.53
Urban	9.25	21.71	24.05	26.91	134.69	10.78	11.91
Rural	13.10	14.57	16.85	21.16	11.18	15.65	25.56
* Population in thousand							

**FIGURE:- 3**  
**POPULATION GROWTH RATE OF ASSAM AND**  
**MARGERITA MASTER PLAN AREA.**



### 2.1.3 Population Density

The net density of population for Margherita town committee and master plan area in 2001 was 4153 and 2491 persons per Sq.km respectively and the same was increased to 4648 and 2680 persons per sq. km. in 2011.

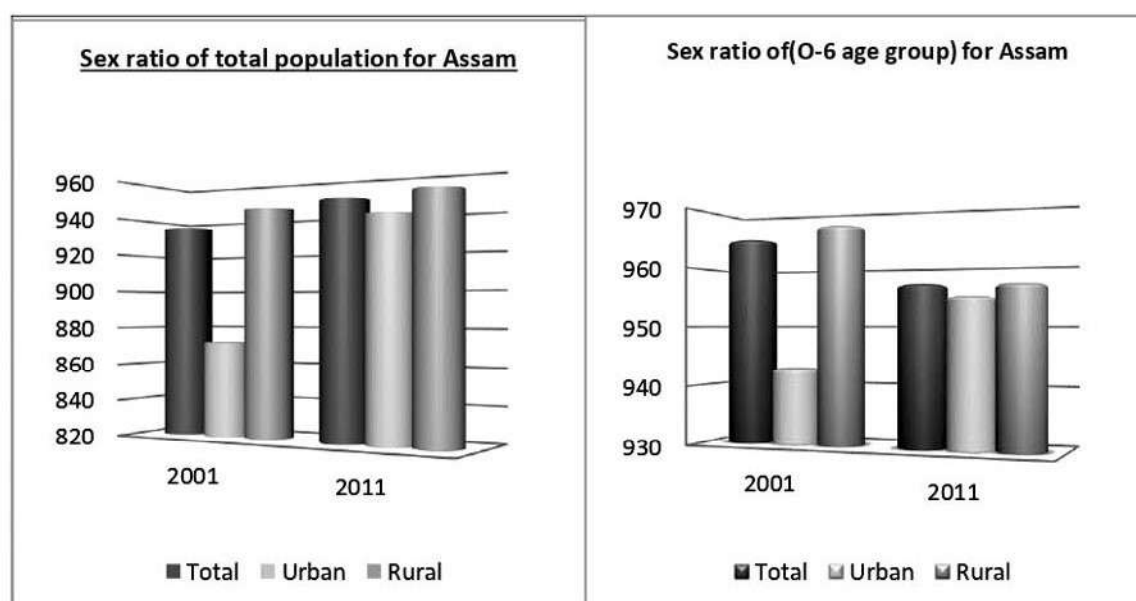
### 2.1.4 Sex Ratio

In 1971, the overall sex ratio i.e., the number of female per thousand males in Margherita town was 805. The sex ratio for the last two decades as per census of India is given below:

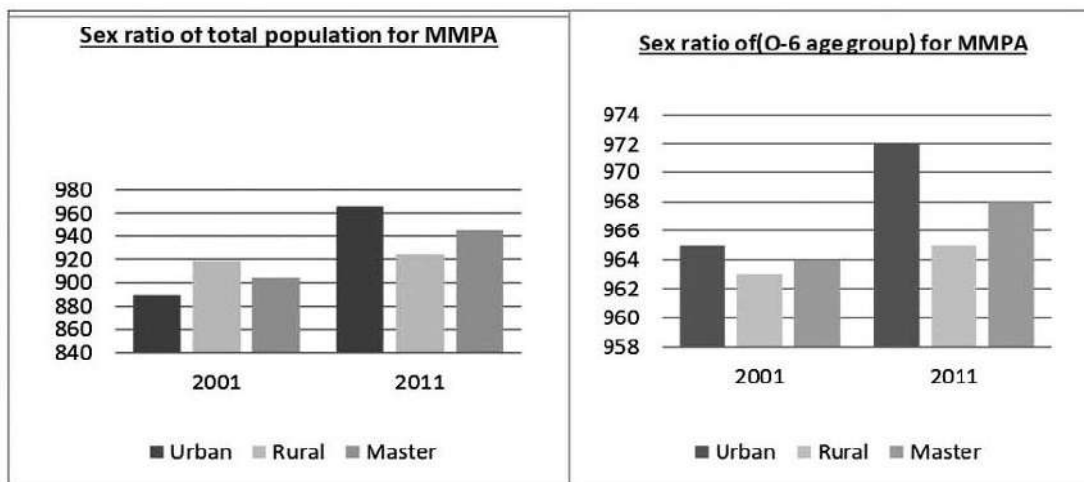
**TABLE NO:- 6**  
**SEX RATIO**

Year	SEX RATIO OF TOTAL POPULATION		SEX RATIO OF 0-6 AGE GROUP	
	2001	2011	2001	2011
<b>Assam State *</b>				
<b>Total</b>	935	947	965	957
<b>Urban</b>	872	939	943	955
<b>Rural</b>	944	950	967	957
<b>Margherita Master Plan *</b>				
<b>Total</b>	904	945	964	968
<b>Urban</b>	889	966	965	972
<b>Rural</b>	919	924	963	965

**FIGURE:- 4**  
**SEX RATIO OF ASSAM:2001-2011**



**FIGURE:- 5**  
**SEX RATIO OF MMPA:2001-2011**



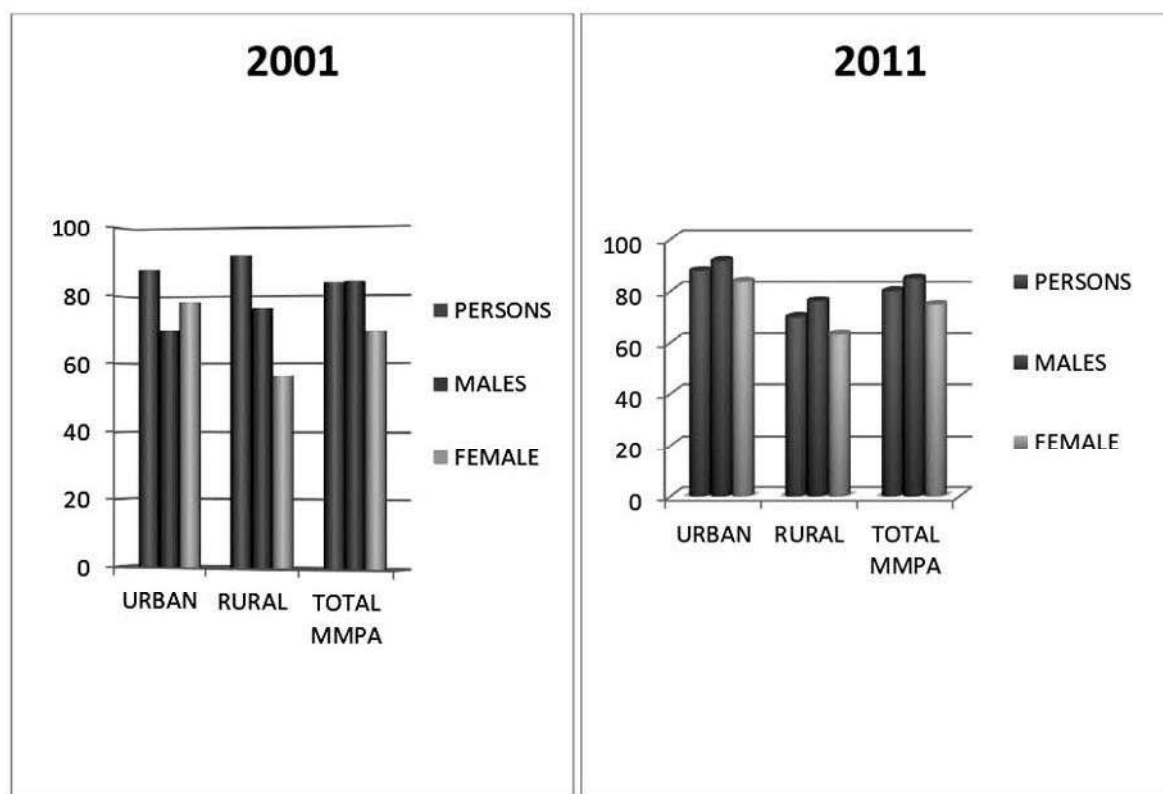
## 2.2 Literacy

The literacy rate of Margherita Urban area as per census of India report, 2011 is 87.70% which is just below state urban literacy rate of 88.88%. The comparison of literacy rate in 2001 and 2011 for Margherita Master Plan Area is given below:-

**TABLE NO:-7**  
**LITERACY OF MMPA**

	2001 ABSOLUTE			2001 LITERACY RATE			2011 ABSOLUTE			2011 LITERACY RATE		
	URBAN	RURAL	TOTAL (MASTER PLAN AREA)	URBAN	RURAL	TOTAL (MASTER PLAN AREA)	URBAN	RURAL	TOTAL (MASTER PLAN AREA)	URBAN	RURAL	TOTAL (MASTER PLAN AREA)
Person's	17896	9453	27349	84.2	66.49	75.34	21293	12908	34201	87.70	69.76	79.94
Males	10100	5634	15734	89.5	75.71	84.00	11388	7273	18661	91.56	76.07	84.83
Female	7796	3819	11615	78.2	56.38	69.38	9905	5635	15540	83.64	63.02	74.77

**FIGURE:-6**  
**LITERACY RATE OF MMPA**



### 2.3 Working and Non-Working Population

The total work force in Margherita master plan area in 2011 is 31728 persons. The work force is calculated considering the between the age group of 15 to 60 years. Out of this work force the working population is 13536 persons equivalent to 42.66% which is higher than the national average of 38%. The balance non-working population (57.34%) mainly consists of women group and unemployed section of the population who are seeking employment in white collard jobs as well as investment opportunities in business. The non-working population outside the workforce group of master plan area is 16345 persons i.e. 34% of the total population which is 48073. The breakup of outside workforce group population comprises of 11% from the age group up to 6 years, 20% from age group of 6-15 years and 3% from the age of above 60 years.

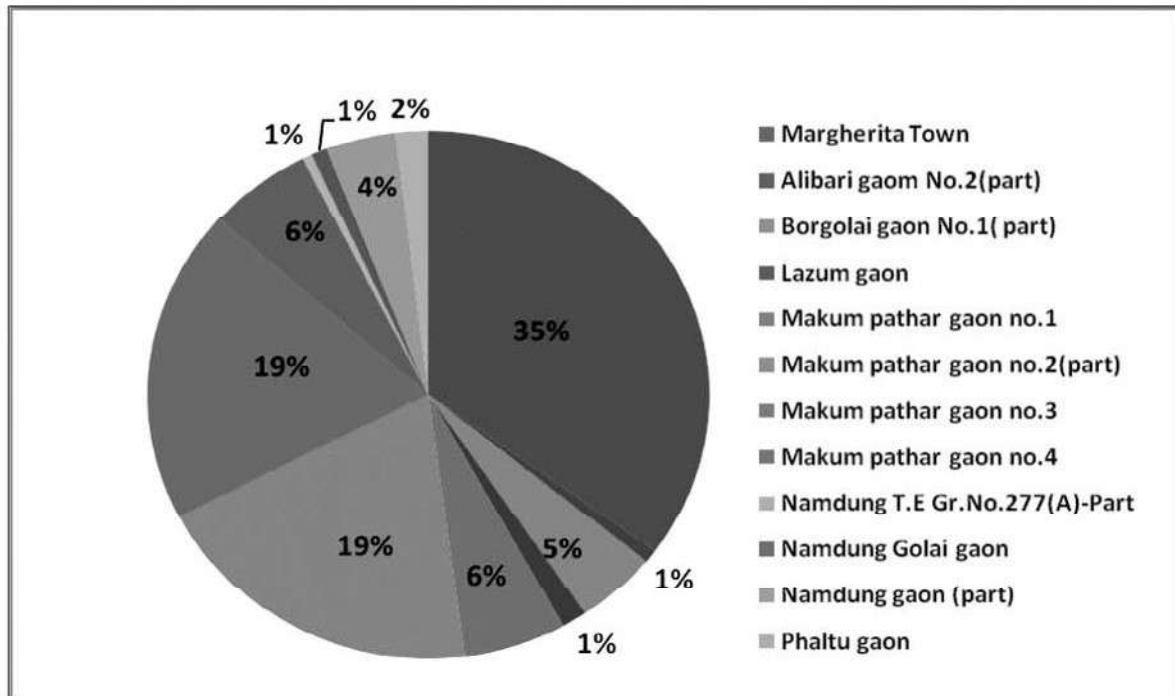
## 2.4 SC-ST Population

The details of SC and ST population for the Margherita Master Plan Area (MMPA) have been shown in the following table.

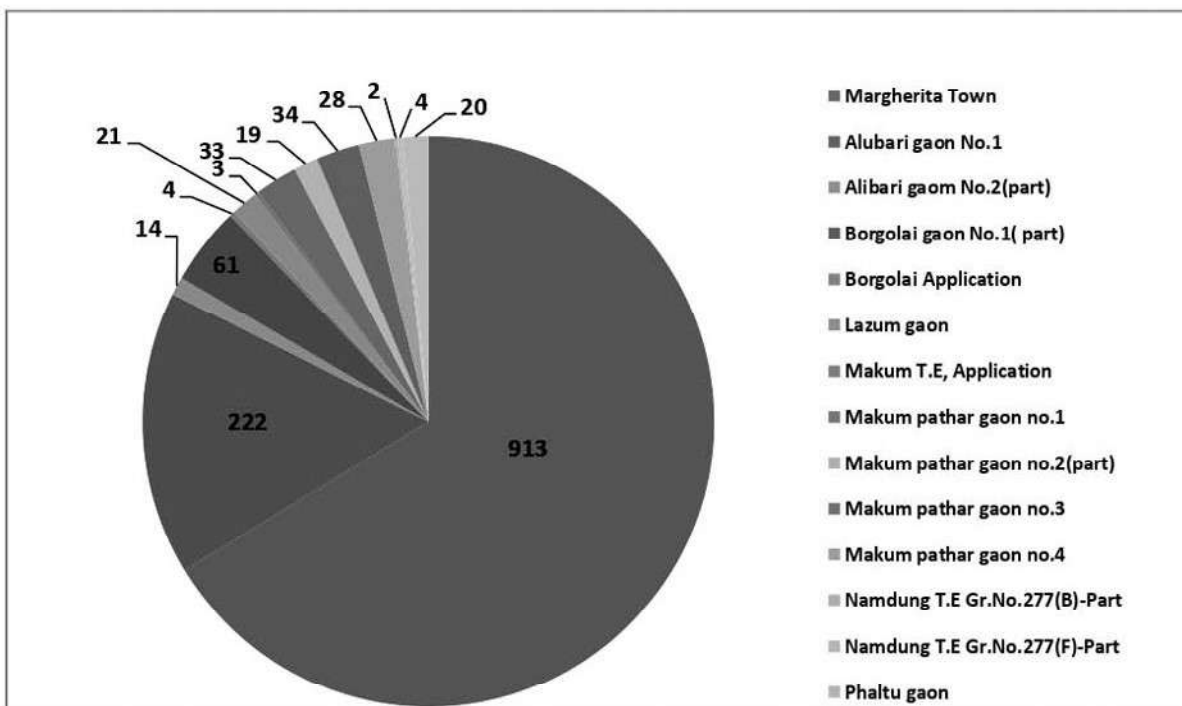
**TABLE NO:- 8**  
**SC and ST population of MMPA in 2011**

SL. NO.	NAME	SC	ST
1	Margherita town	913	262
2	Alubarigaon No.1	222	0
3	Alibarigaon No.2(part)	14	6
4	Borgolaigaon No.1 ( part)	61	35
5	Borgolai Application	4	0
6	Lazungaon	21	11
7	Margherita Kumar patty	0	0
8	Makum T.E, Application	3	0
9	Makumpathargaon no.1	33	44
10	Makumpathargaon no.2(part)	19	145
11	Makumpathargaon no.3	34	144
12	Makumpathargaon no.4	28	45
13	Namdung T.E Gr.No.277(A)-Part	0	4
14	Namdung T.E Gr.No.277(B)-Part	2	0
15	Namdung T.E Gr.No.277(F)-Part	4	0
16	NamdungBanshbarigaon	0	0
17	NamdungGolaigaon	0	7
18	Namdunggaon (part)	0	30
19	Phaltugaon	20	14
	<b>Total</b>	<b>1378</b>	<b>747</b>

**FIGURE :-7**  
**ST POPULATION OF MMPA IN 2011**



**FIGURE :-8**  
**SC POPULATION OF MMPA IN 2011**



## **2.5 Migration Population**

The robust local economy once attracted scores of people from other parts of the country to settle here in search of jobs and business opportunities. In addition to Assamese and various indigenous ethnic groups, the town is home to hundreds of people who migrated from undivided Bengal, Bihar, Uttar-Pradesh, Andhra-Pradesh and Nepal to change their fortunes. Margherita also serves as a transit point to the adjoining rural belts and Arunachal's landlocked Changlang and to an extent of Tirap district.

## **2.6 House Hold Density and Size**

There are about 10442 residential houses in the year 2011 in Margherita Master Plan Area. There are total population of 48073 persons in planning area, as such, household size is 4.6 person's per house and density is 582 houses per sq.km.

## **2.7 Population Projection**

In making the future population projection for Margherita Master Plan Area for the period 1991-2041, all the relevant factors such as changes in fertility and mortality rate, age-sex composition of the population, existing land use pattern, socio-economic condition and expected emigrational flows have been considered.

For the projection, a general fertility rate of 0.19 for woman in a productive age group has been assumed. Mortality trends is based on recent experience of India and the trends on increase on life expectancy on the United Nations model life table for under developed countries.

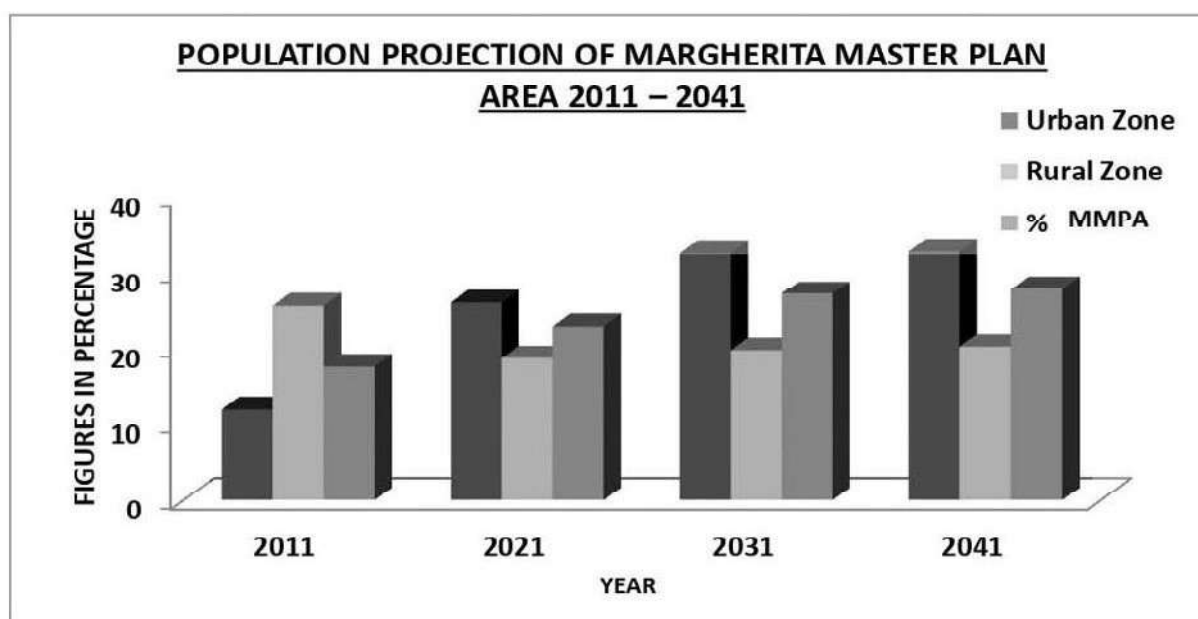
The final population projections have thus been arrived at with the entire base population of 1991 accounted for as the natural population, by adding to the natural population, the increase due to the natural growth plus the increase due to emigrational flow of trade & commerce purpose including the natural increase of migrants. The following table shows the population projections up to 2041 for the urban and rural zones of Margherita Master Plan Area.



**TABLE NO:- 9**  
**POPULATION PROJECTION OF MARGHERITA MASTER PLAN AREA 1991 – 2041**

Year	Urban Zone	% of increase	Rural Zone	% of increase	Total population of Margherita Master Plan Area.	% of increase
1991	21709	---	14570	----	36279	----
2001	24049	10.78	16851	15.65	40900	12.74
2011	26914	11.91	21159	25.56	48073	17.54
2021	33904	25.98	24058	18.62	57962	22.82
2031	44916	32.48	28789	19.66	73705	27.16
2041	59607	32.71	34587	20.14	94194	27.80

**FIGURE :-9**  
**POPULATION PROJECTION OF MMPA 1991 – 2041**



Source:- Urban Area Population of 1991, 2001 & 2011 from Census of India, Assam & 2021, 2031 & 2041 population figures estimated by Town & Country Planning, Dibrugarh. Rural Area Population of 1991, 2001 & 2011 from Census of India, Assam & 2021, 2031 & 2041 population figures estimated by Town & Country Planning, Dibrugarh

### **CHAPTER -3**

## **3. ECONOMIC BASE AND EMPLOYMENT**

### **3.1 Formal Sector**

The Master Plan for Margherita stresses on the urgent need for creation of a conducive environment in which optimum use of natural, local and regional resources can be utilized to build up a sound economic base.

Margherita is a centre for tea gardens, plywood factories and coal mines. The first crude oil refinery was set up at Margherita long before Digboi had one as reported in the books of history. In the past, Margherita had an industrial tradition. In the recent years the pace of industrial activity has retarded because plywood industries are banned by the Govt. and the crude oil refinery was also closed. So in order to provide adequate employment opportunities in the future, the establishment of new industry should be encouraged and the rate of industrial growth needs to be stepped up considerably along with the expansion of service sector, so that it can keep pace with the population growth of this area.

Like the nearby towns Digboi, Tinsukia etc. Margherita has also great importance in major industrial activities. Within the planning area there are 4(four) tea gardens with factories. Other important industries in Margherita are coal, rice, cottage and light manufacturing units.

Assam Railways & Trading Company (AR&TC) began setting up well laid-out mines at Ledo, Borgolai & Tipong, in the outskirts of Margherita Master Plan Area, and the industry developed continuously in the past years that helped Margherita to attain a place in the map of Assam as an industrial town. After the nationalization of colliery, modernization had taken place in Ledo colliery and importance was given on open cast mining rather than underground mining using foreign technology. The coal of this area has been supplied to various industries mainly to steel industries situated at various parts of India. There is also example of exporting coal to the neighboring countries. The growth of industry has improved the standard of living of the people of this area.

Assam is known as the place of one bud with two leaves. Assam's tea is not only famous within the country but it has also goodwill and demand in the international market. In the year 1891, AR&TC Company started tea cultivation at Margherita covering



an area of 78 acre. At present, there are four big tea gardens in Margherita and its suburb area. Moreover, a good number of small tea gardens were also established in the suburb area of Margherita boosting the socio-economic condition of the town.

Margherita region has a scope for establishing industry associated with tea garden implements, equipment's of mining, fabrication etc. and other non-ferrous utensil units, casting and general engineering industries.

Before the establishment of plywood factory at Margherita in the year 1924, there was only 4(four) plywood industry in the entire India. However, being a profitable business more than 16(sixteen) small & big plywood factories were set up in Margherita and its suburb area in between 1960 to 1980. Hundreds of people were employed as a labourer. But due to enactment of law by the Govt. on the cutting of tree (timber cutting) these industries were closed.

### **3.2 Informal Sector**

There is an English proverb that "Necessity is the mother of all inventions". Accordingly AR&TC Company set up a Brick-Kiln industry at Ledo, 6km. north-west of Margherita to help for the security measures in the mine, to construct house, to construct road & bridges etc. Here bricks were made with the help of machine and that system is still continuing. The demand for bricks increased day by day due to the establishment of new house, office building and institution etc. Due to the continuous increase demand of bricks presently a good number of brick-kiln industries have been set up at Margherita to meet the demand.

Margherita is bounded by Dihing, Tirap and Tipong Forest reserve. Although the region is rich in forest resources these have not been exploited fully. There is a good scope for setting up of various wood based industries like safety matches, tea chests, furniture and pre-fabricated housing units etc.

The industrial development targets as proposed above can be achieved through private sector & Governmental agencies by providing suitable industrial land with necessary infrastructure like roads, uninterrupted power, water and drainage and subsidy on power tariff, financial assistances in the form of soft loan etc. The present concept of public –private partnership (PPP) can also be adapted for faster and smooth development of industries.

Margherita town is the nerve centre of business & service of that area. Within the radius of 25km. distance, people use to come here to sell their produce and to buy necessary goods for their domestic consumption. There are two main markets in Margherita, one is Vinner Mill market and the other is Margherita market situated at the centre of Margherita town. In Margherita town there are also three vegetable markets, these markets not only fulfill the demand for Margherita & its suburbs but also supply the essential commodities to the people of border areas of Arunachal Pradesh. These markets have played an important role in the economic expansion of Margherita town.

Before 1970, the people of Margherita need to go to Digboi & Tinsukia for the banking transaction. But after the nationalization of banks, the United Bank of India established their first

branch at Margherita in the year 1970. Presently, the banking service at Margherita has improved because various banks, such as State Bank of India, Central Bank of India, Punjab National Bank etc. have established their branches at Margherita. The financial condition of the people has been improved along with strengthening of economic structure due to money mobilization by these banks. Moreover, insurance companies are also playing an important role for expansion of trade & commerce, social security and socio-economic development. In Margherita, there are three insurance companies namely Life Insurance Company of India, National Insurance Company Ltd., and United India Assurance Company Ltd.

### 3.3 Occupational Pattern

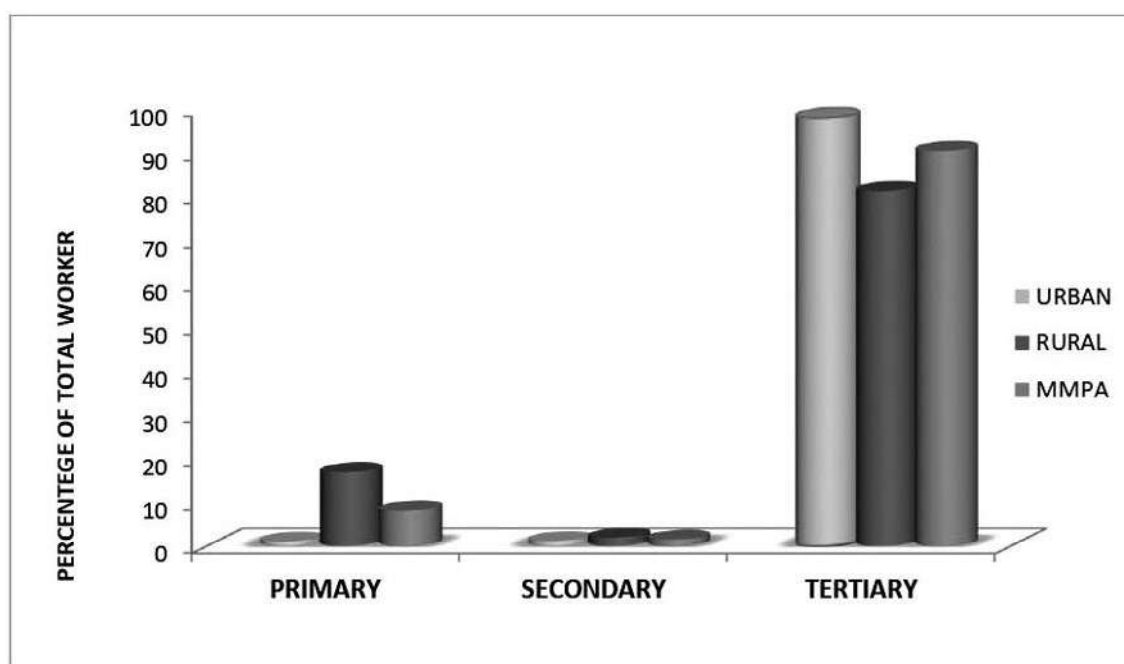
Occupational structure depicts the characteristics of employment for livelihood of the people living in a particular planning area. The engagement of people in industry, trade, commerce and white-collar jobs etc. is known as the occupation & employment character. In 1971, the total number of workers in Margherita municipal area was about 3491, which constitutes 37.74% of the total population of the municipal area. In 1971, the percentage of workers engaged in primary, secondary and tertiary sectors of occupations was 5.30%, 20.34% and 74.36% respectively. In 2001, the total workers in Margherita Master Plan Area were 13536 persons, out of which the number of workers in urban and rural area was 7491 and 6045 persons respectively. The percentage of workers engaged in primary, secondary and tertiary sectors of occupations was 1.00%, 1.11% and 97.89% in the Urban Area and 16.88%, 1.92% and 81.20% in the Rural Area. In the Planning area as a whole, the worker engaged in primary, secondary and tertiary sectors of occupations 8.94%, 1.52% and 89.54%. Though Margherita is known as an industrial town, the data depicts that Margherita is a service-oriented town. It is due to the fact that the main industrial area is located outside the Master Plan boundary. Another fact is that earlier Plywood industry of Margherita does not exist due to the imposition of law by Govt. on the cutting of tree (timber cutting).

The occupational distribution of population in Margherita master Plan Area for 2001 is shown in the following table:-

**TABLE NO:- 10**  
**OCCUPATIONAL DISTRIBUTION OF POPULATION IN**  
**MARGHERITA MASTER PLAN AREA**

Sl. No.	Category	Urban Area		Rural area		Margherita Master Plan Area	
		No. of workers	% of total workers	No. of workers	% of total workers	No. of workers	% of total workers
1.	Primary Sector	74	1.00	1020	16.88	1094	8.08
2.	Secondary Sector	83	1.11	116	1.92	199	1.47
3.	Tertiary Sector	7,334	97.89	4909	81.20	12243	90.45
	TOTAL	7491	100.00	6045	100.00	13536	100.00

**FIGURE :-10**  
**PERCENTAGE OF TOTAL WORKER**



The above table reveals that the number of people engaged in the secondary sector is higher in the Rural Area than in the Urban Area. This is due to the fact that in the suburbs of Margherita town, there is the existence of coal field & tea gardens. So, a good number of people work as labourers in coal field & tea estates.

The number of people engaged in primary sector in the planning area is low in comparison to the tertiary sector. The highest number of people i.e. 12243 is engaged in the tertiary sectors in the planning area.

In 2011, the total no of workers in urban and rural area increase to 9646 and 7710 persons respectively and the total no of workers in the master plan increase to 17356persons.

The first spurt of industrialization in the North-east had started at Margherita in the latter half of the 18<sup>th</sup> century. In fact, the first crude oil refinery was set up at Margherita long before Digboi had one by the Assam Railways and Trading Company (AR&TC) which was a pioneer company in extracting and refining oil, coal mining and setting up a highly mechanized saw mill in Assam. The AR&TC took over lease of the area in 1893 AD and began setting up well-laid-out mines at Ledo, Borgolai and Tipong areas which are just outside of Margherita Master Plan Area. But after the formation of Assam Oil Company and setting up of Oil Refinery at Digboi, the industrial activity of Margherita has declined. Presently Margherita is famous only as the land of coal because coal mine is situated at Ledo, 6 km. North-West of Margherita.

On the other hand, the people of nearby villages have been blessed with the presence of alluvium & fertile soil for Buri Dihing River, which begets rich crops and this is the main source of livelihood for them.

Secondly, due to expansion of micro, cottage & service industry, Margherita town has been developing day by day thus providing source of living to many people. In view of the above, the question of livelihood can be discussed on the following heads as mentioned below:-

- (a) Engaged in industry like Tea, Coal and Cottage etc.
- (b) Engaged in cultivation.
- (c) Engaged in business.
- (d) Serving as a Govt. employee & private employee.



## **CHAPTER- 4**

### **4. HOUSING AND SHELTER**

#### **4.1 Housing Scenario**

Housing is the basic need of the civilized living. Despite various efforts to solve the housing problem with various policies, there is a huge gap between the supply and the demand for the housing in Assam in general and Margherita town in particular. A section of population in Margherita either have no place to live in or living under highly unhygienic, inhuman condition and deprivations. Lack of privacy, absence of minimum basic amenities, use of substandard building materials and unhygienic surroundings dominates the scene of settlements. In Margherita, while the housing problem in the rural areas, by and large is qualitative in nature and the problem in the urban areas is largely quantitative. The uncontrolled growth of population in urban areas due to migration and other factors have created a high magnitude of housing and infrastructure problem. Due to migration of rural population to the town, available vacant spaces in the urban areas are slowly being converted to unplanned, unhygienic built- up area. Moreover, cost of land in the urban area is also increasing. People in the low and middle income group even find it difficult to acquire the land at the present prevailing cost.

The housing pattern of Assam, including Margherita region have living habits of such a kind that is different from other states and region of the country. There is a general feeling in Margherita region that the basic problem is up gradation of existing units and there is very little need to be done to provide a roof for the utterly shelter less population as the category of such household is very negligible in the region.

An average household size in MMPA has 4.60, the size being higher in rural area (4.75 members) as compared to urban areas (4.49 members). The higher rural household size is partly responsible for the Assamese tradition of larger sized plots and built-up space and tradition of joint family system. The typical Assam type house, built in local design with bamboo as wall material and thatch/ backed roof materials is a prominent feature of the housing scenario. These units require some up gradation in the physical structure, strengthening and increase in longevity. Such an upgradation program is more urgent for “Kutchas”, units which accounts for almost 25% of the dwelling units in MMPA.

It is true that development of our country is dependent on the physical and mental health of the people. People who sleep on streets or who live in unhygienic houses cannot fully develop



emotionally, intellectually, economically, culturally or as a family. In fact, inadequate and insecure shelter can lead to social and political instability which eventually hampers economic development of our country.

To address this problem, Government of India introduced a new Housing scheme in 2014 namely Pradhan Mantri Awas Yojana (housing for all by 2022). If this scheme dose works it would at least help to reduce India's major contribution with one of the highest homeless populations in the world. Under the PMAY, the main proposal was to construct 20 million homes for those people belonging to the Low Income families and Economically Weaker Sections in the identified urban and semi – urban areas by 2022. Accordingly, Margherita Municipality is also working to provide houses to the poor as per guideline.

#### **4.2 Housing Supply Mechanism**

Housing supply is the main role of the State Government to improve living condition to the inhabitants either by directly providing houses or by financial assistance. The Government has adopted different policies to solve the housing problems especially for poor and low income group. However, housing supply must address all social groups in the State including housing in urban areas, semi-urban areas and rural areas .In the recent years private building's and developer's come forward to solve the problems of housing in urban areas of the State by constructing flat. However, such practices have not been seen in Margherita town. In the rural areas of Master plan a few house has been constructed under centrally sponsored housing scheme. The plan recommends that State Housing Board or any other Govt. agency should come forward to build housing colonies at Margherita for all sections of people of the state considering its unique scenic beauty.



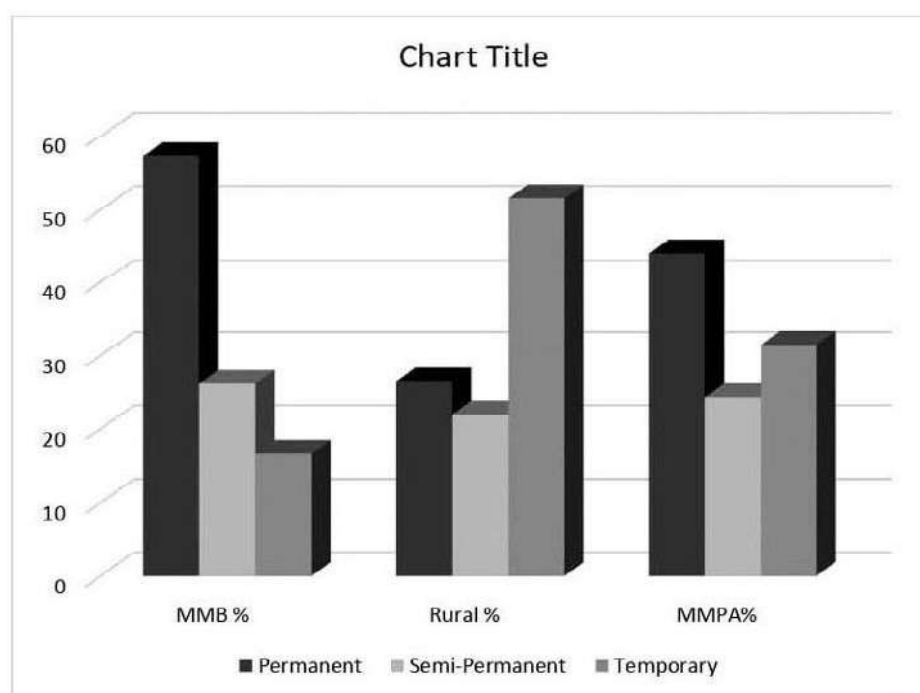
**4.3 Housing Condition, Type of Structure etc.**

The table below shows the number and percentage distribution of person's living in permanent, semi-permanent and temporary house in 2011.

**TABLE NO:- 11**  
**HOUSING CONDITION, TYPE OF STRUCTURE**

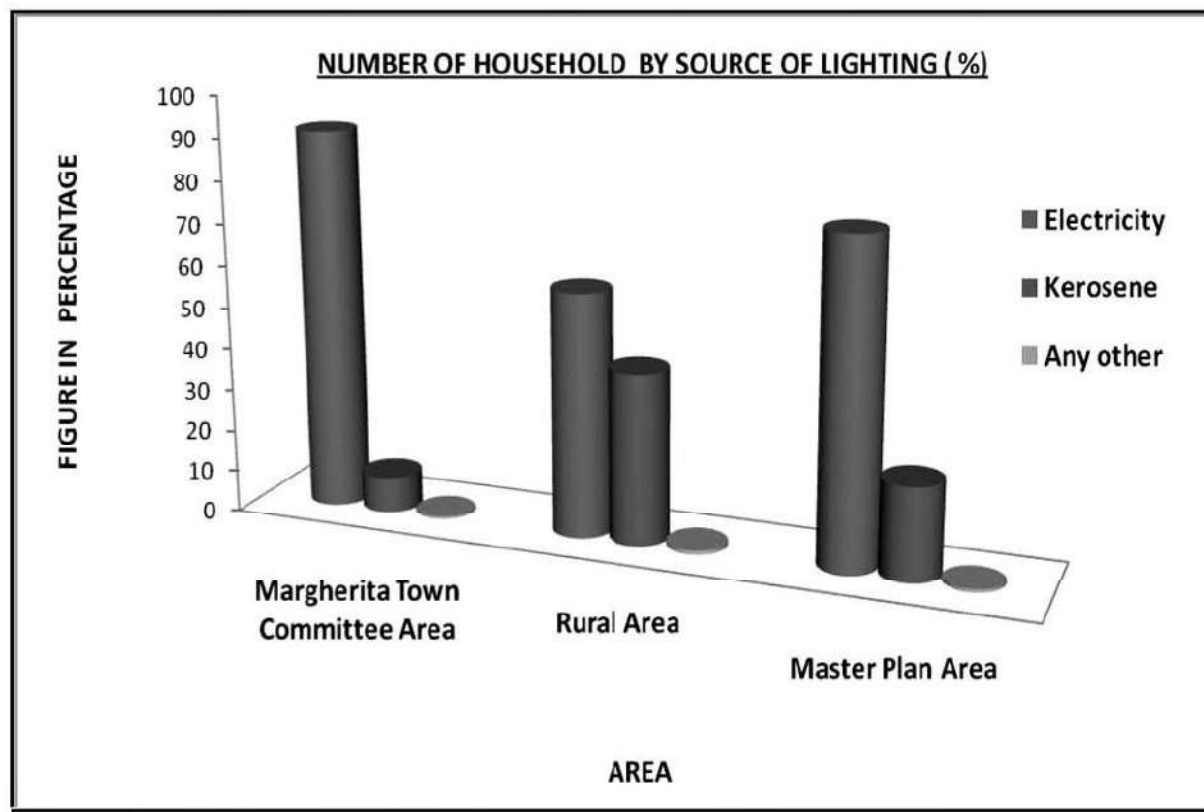
Housing Condition	Margherita Municipal Area		Rural area		Master plan area	
	No. of H/Hs	%	No. of H/Hs	%	No. of H/Hs	%
Permanent	3426	57.20	1178	26.46	4604	44.09
Semi-Permanent	1569	26.19	979	21.99	2548	24.40
Temporary	995	16.61	2295	51.55	3290	31.51
Total	5990	100	4452	100	10442	100

**FIGURE :-11**  
**HOUSING CONDITION**



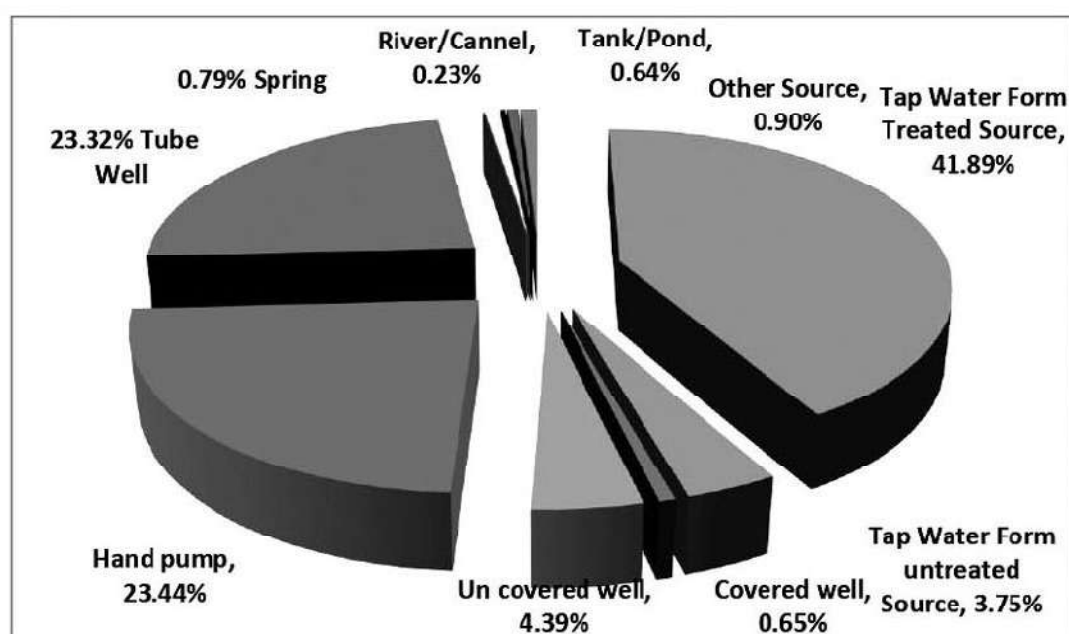
**TABLE NO:- 12****Number and Percentage of Household by source of lighting.**

Particulars	Margherita Municipal Area		Rural Area		Master Plan Area	
	No. of Household	Percentage	No. of Household	Percentage	No. of Household	Percentage
Electricity	5452	91.02%	2585	58.06%	8037	76.97%
Kerosene	501	8.37%	1825	40.99%	2326	22.27%
Solar	11	0.19%	14	0.31%	25	0.24%
Other oil	7	0.11%	12	0.27%	19	0.18%
Any other	3	0.05%	3	0.07%	6	0.06%
No. lighting	16	0.26%	13	0.30%	29	0.28%
Total	5990	100%	4452	100%	10442	100%

**FIGURE :- 12**

**TABLE NO:- 13****NUMBER AND PERCENTAGE OF HOUSE HOLD BY MAIN SOURCE OF DRINKING WATER**

Particulars	Margherita Municipality Area		Rural Area		Master plan Area	
	No. of Household	Percentage%	No. of Household	Percentage %	No. of Household	Percentage %
Tap Water Form Treated Source	2509	41.89%	334	7.50%	2843	27.23%
Tap Water Form untreated Source	225	3.75%	44	0.99 %	269	2.58%
Covered well	39	0.65%	72	1.62%	111	1.06%
Un covered well	263	4.39%	670	15.06%	933	8.93%
Hand pump	1404	23.44%	2387	53.61%	3791	36.30%
Tube well	1397	23.32%	728	16.35%	2125	20.35%
Spring	47	0.79%	41	0.92%	88	0.84%
River/Cannel	14	0.23%	101	2.028%	115	1.10%
Tank/Pond	38	0.64%	22	0.49%	60	0.58%
Other Source	54	0.90%	53	1.18%	107	1.03%
<b>Total</b>	<b>5990</b>	<b>100%</b>	<b>4452</b>	<b>100%</b>	<b>10442</b>	<b>100%</b>

**FIGURE :-13**  
**SOURCE OF DRINKING WATER**

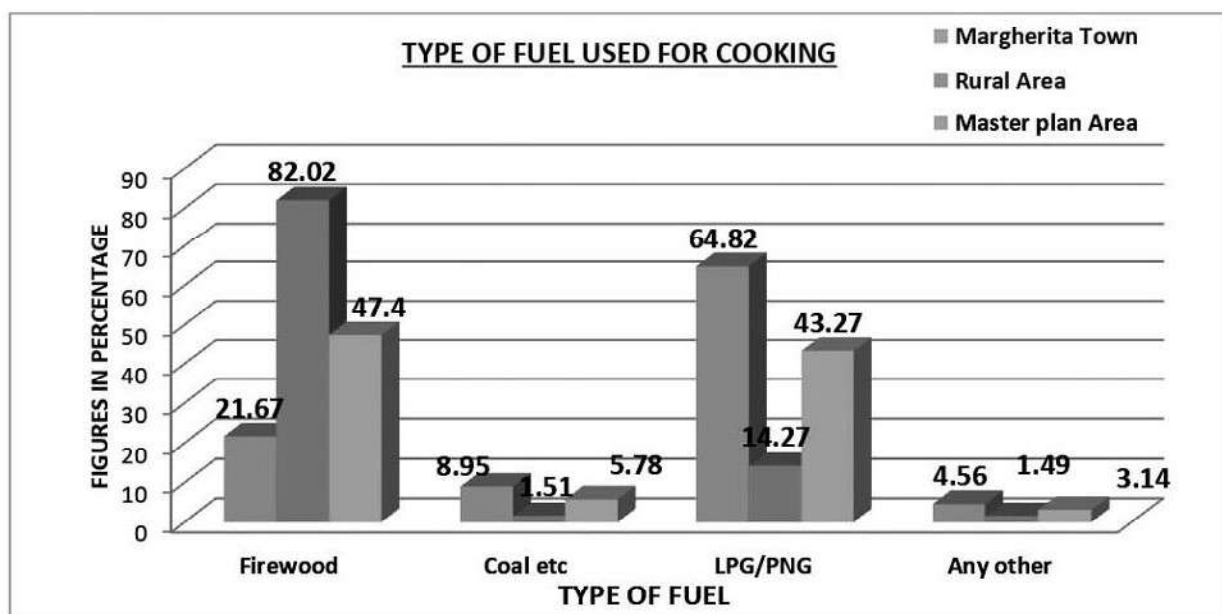
**TABLE NO:- 14**

**NUMBER AND PERCENTAGE OF HOUSE HOLD BY  
TYPE OF FUEL USED FOR COOKING**

	Margherita town Committee area		Rural Area		Master plan Area	
	No. of Household	Percentage %	No. of Household	Percentage %	No. of Household	Percentage %
Firewood	1298	21.67%	3651	82.02%	4949	47.40%
Crop residue	46	0.77%	48	1.08%	94	0.90%
Cow-dung Cake	6	0.10%	6	0.14%	12	0.11%
Coal etc	536	8.95%	67	1.51%	603	5.78%
kerosene	172	2.87%	20	0.45%	192	1.84%
LPG/PNG	3883	64.82%	636	14.27%	4519	43.27%
Electricity	2	0.02%	3	0.06%	5	0.05%
Biogas	11	0.19%	6	0.14%	17	0.16%
Any other	5	0.09%	3	0.07%	8	0.08%
No Cooking	31	0.52%	12		43	0.41%
Total	5990	100%	4452	100%	10442	100%

**FIGURE :-14**

**TYPE OF FUEL USED FOR COOKING**



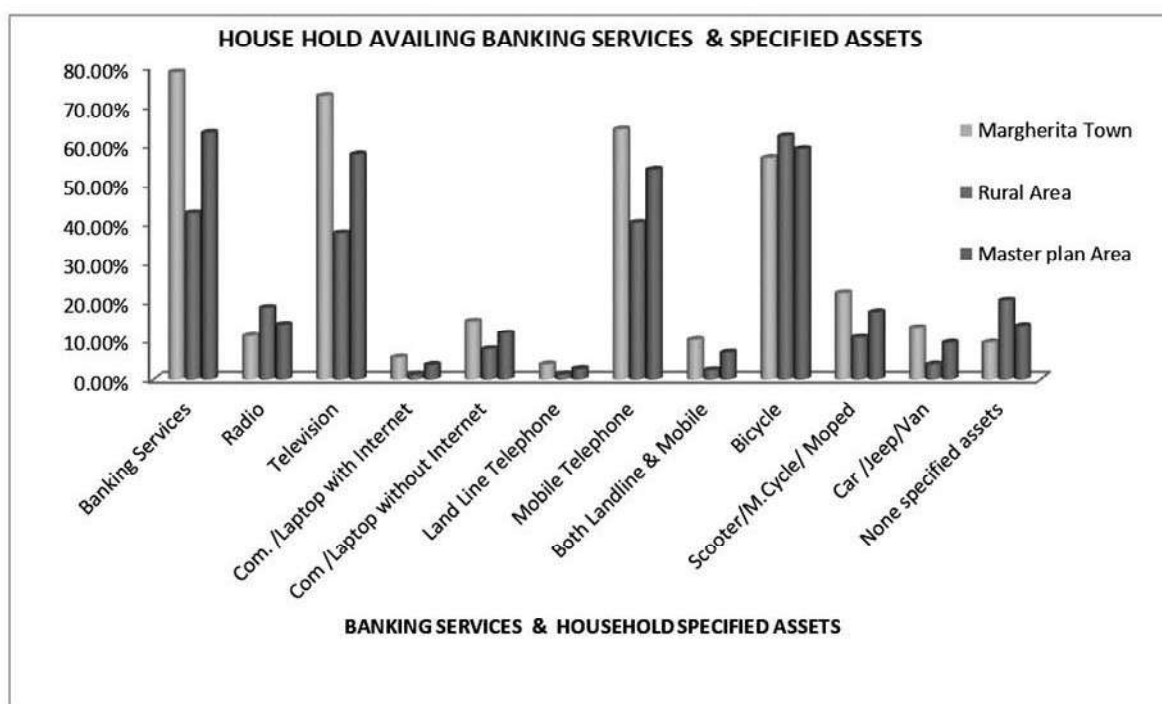
**TABLE NO:- 15**

**NUMBER AND PERCENTAGE OF HOUSE HOLD AVAILING BANKING SERVICES AND  
NUMBER OF HOUSEHOLD HAVING EACH OF THE SPECIFIED ASSETS.**

Banking Services	Margherita town Committee area		Rural Area		Master plan Area	
	No. of Household	Percentage%	No. of Household	Percentage %	No. of Household	Percentage %
Banking Services	4702	78.50%	1818	42.56%	6583	63.04%
Radio	658	10.99%	818	18.37%	1476	14.13%
Television	4346	72.56%	1665	37.39%	6011	57.56%
Computer /Laptop with Internet	331	5.53%	50	1.13%	381	3.65%
Computer / Laptop with without Internet	895	14.94%	337	7.57%	1232	11.80%
Land Line Telephone	225	3.75%	52	1.17%	277	2.65%
Mobile Telephone	3829	63.93%	1784	40.08%	5613	53.75%
Both Landline & Mobile	600	10.01%	101	2.27%	701	6.71%
Bicycle	3394	56.67%	2768	62.18%	6162	59.01%
Scooter/Motorcycle/ Moped	1326	22.13%	473	10.62%	1799	17.29%
Car /Jeep/Van	798	13.32%	166	3.74%	964	9.23%
None of the specified assets	555	9.26%	902	20.26%	1437	13.76%

**FIGURE :-15**

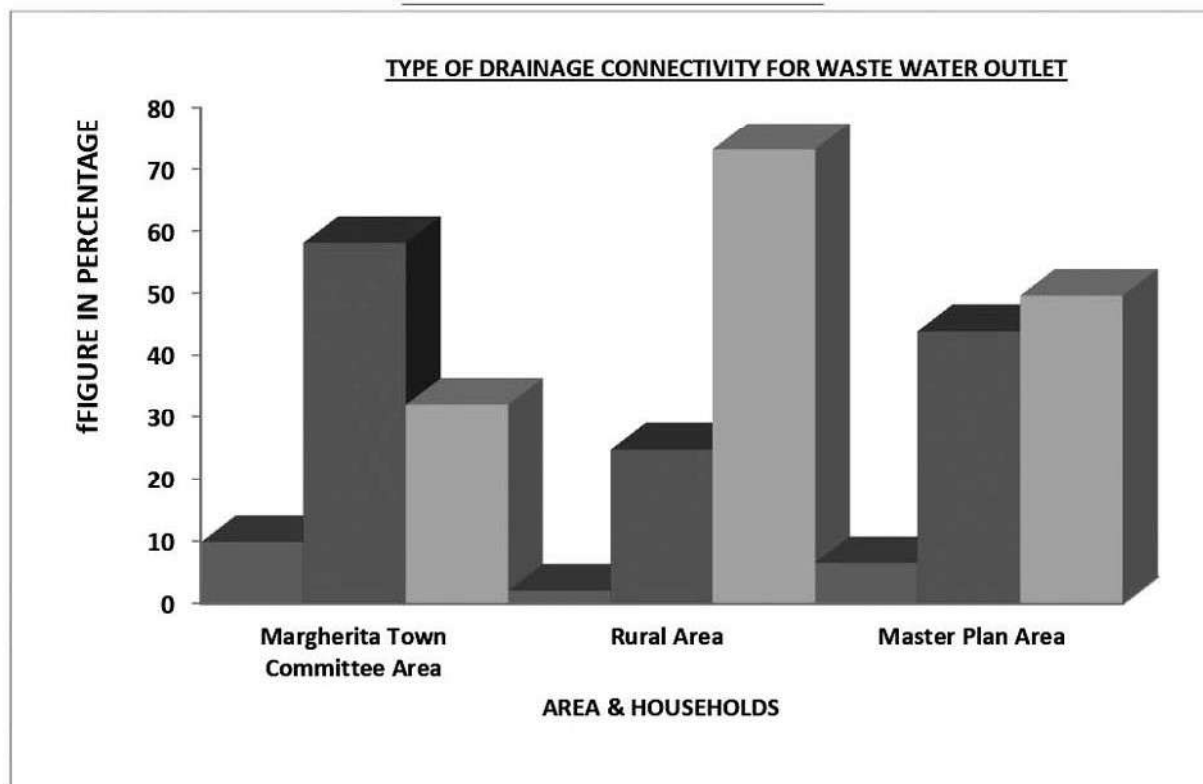
**NO & PERCENTAGE H/H'S AVAILING BANKING SERVICES  
AND SPECIFIED ASSETS**



**TABLE NO:- 16**  
**NUMBER AND PERCENTAGE OF HOUSEHOLD BY TYPE OF DRAINAGE**  
**CONNECTIVITY FOR WASTE WATER OUTLET**

TYPE OF DRAINAGE	Margherita MunicipalityArea		Rural area		Master plan area	
	No. of Household	Percentage%	No. of Household	Percentage %	No. of Household	Percentage %
Closed Drainage	591	9.86%	92	2.06%	683	6.54%
Open Drainage	3481	58.12%	1102	24.76%	4583	43.90%
No. Drainage	1918	32.02%	3258	73.18%	5176	49.56%
Total	5990	100 %	4452	100 %	10442	100 %

**FIGURE :-16**  
**DRAINAGE CONNECTIVITY**

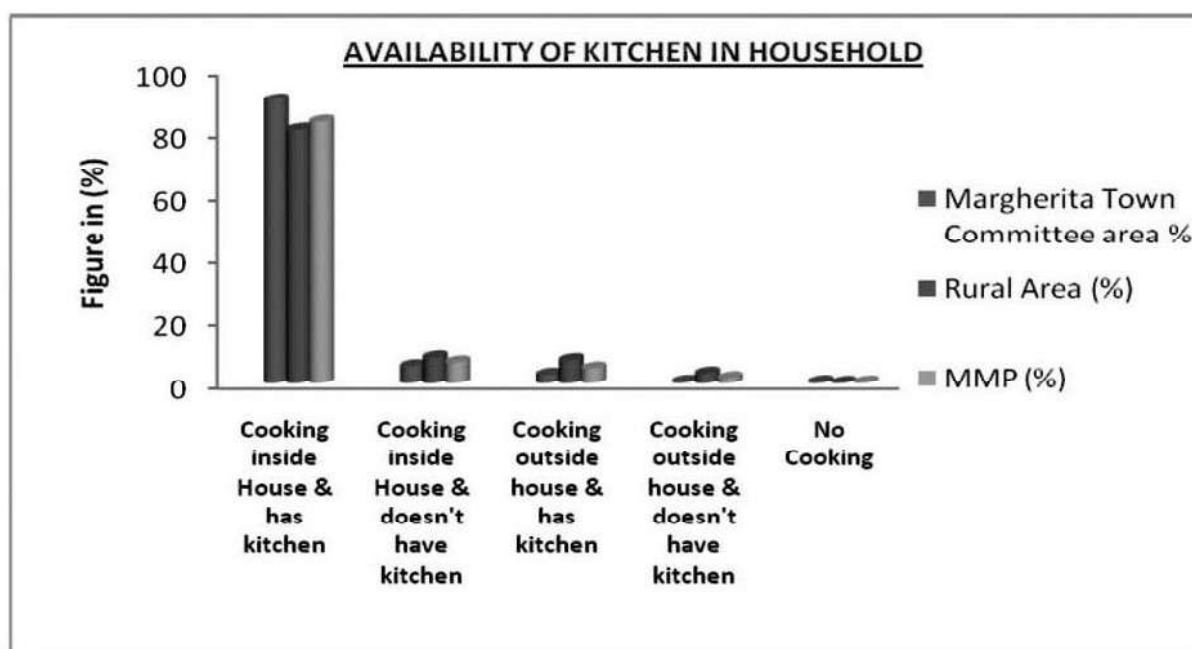




**TABLE NO:- 17**  
**NUMBER AND PERCENTAGE OF HOUSEHOLD BY AVAILABILITY OF KITCHEN**

AVAILABILITY OF KITCHEN		Margherita Municipality Area		Rural area		Master plan area	
		No.of Household	Percentage%	No.of Household	Percentage%	No.of Household	%
Cooking inside House	Has kitchen	5414	90.38%	3593	80.71%	9007	86.26%
	Does not have kitchen	333	5.56%	371	8.33%	704	6.74%
Cooking outside House	Has kitchen	172	2.88%	332	7.46%	504	4.83%
	Does not have kitchen	40	0.66%	144	3.24%	184	1.76%
No. Cooking		31	0.52%	12	0.26%	43	0.41%
<b>Total</b>		<b>5990</b>	<b>100%</b>	<b>4452</b>	<b>100%</b>	<b>10442</b>	<b>100%</b>

**FIGURE:-17**  
**AVAILABILITY OF KITCHEN**



#### 4.4 Slums- Squatters and Informal Housing Share

The Slum in urban area is a common phenomenon in India and Margherita town is also no exception. The slum area and its population in the town are increasing every year due to the natural growth of population and migration of labour class people to the town. At present, there are 2 (two) non-notified slum pockets at Margherita town. During rainy season, slum areas are partially water logged there by damaging the existing kutchra roads as well as graveled roads. The others problems faced by the slum areas are sanitary, water supply, electricity, refuse disposal etc.

**TABLE NO:- 18****Slum pocket**

Sl. No.	Ward No.	Name of slum pocket	No.of house hold	No of population
1	4	DASPARA	40	225
2	5	DHAN BAZAR	65	392
3	6	DIHINGPORIA	70	430
4	2	KOIRABARI	50	320
<b>Total</b>			225	1367

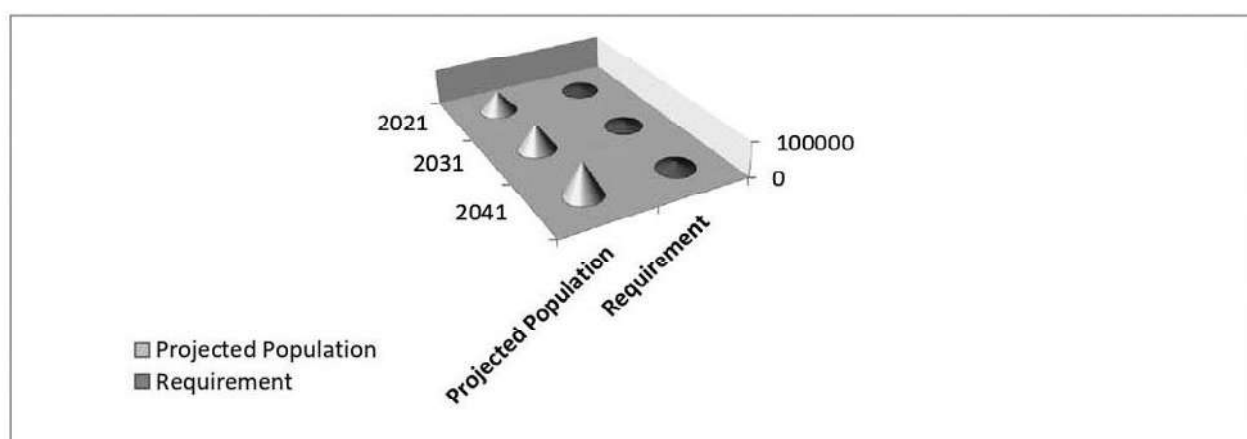
**SLUM AREA IN MARGHERITA TOWN****4.5 Housing Stock, Shortage and Need Assessment**

There are about 5990 houses within the municipal area and 4452 houses in rural areas of master plan in 2011. The total number of houses in master plan area is 10442 nos.. If we assume the standard occupancy rate of 4.5 persons per house then housing accommodation available for 46989 persons out of total population of 48703 persons out of total population of 48703 in 2011. The housing requirement for the remaining population of 1084 persons in the year 2011 itself was 241 Nos.

To find out the housing need for future a detailed study of family size level of obsolescence, existing shortage etc. are necessary. However, on the basis of projected population and prevalence of joint family system in the master plan are, this plan assumes the average household size of 5 persons per household and accordingly the gross housing need is listed below upto the year 2041.

**TABLE NO:-19****HOUSING REQUIREMENT IN MARGHERITA MASTER PLAN AREA UPTO 2041**

Year	Projected population	Gross Housing Requirement
2021	57962	11592
2031	73705	14741
2041	94194	18839

**FIGURE :-18**  
**HOUSING PROJECTION & REQUIREMENT**

Source: Estimated by Town& Country Planning, Dibrugarh.

It has been seen that the increase of population in the master plan area from 2011 to 2041 will be  $(94194 - 48703) = 45491$  persons and for this additional population additional housing requirement will be  $(18389 - 10442) = 7947$ nos.. As such this plan recommended that necessary housing schemes, semi- public and private agencies should be undertaken with the framework of master plan,. The private developers under PPP mode may come forward to solve this problem.

## **CHAPTER-5**

### **5 TRANSPORTATION**

#### **5.1 Network of Roads**

Urban road network is considered as engines of economic growth. However, the roads of Margherita urban area are very narrow and shoulder width is insufficient to accommodate the present traffic volume for easy movement except N.H.-38 and there is also little scope for the widening. There are three level crossings within the Master Plan Area, two are within the town at Sagunbari and near Margherita Railway station, which remain always busy and requires immediate improvement. The 3<sup>rd</sup> level crossing is situated in the Borgolai area. Moreover,



road junctions in the town are not technically developed and it requires immediate technical intervention.

The roads within the residential areas are too narrow. Widening of these roads is urgently necessary. There is hardly any parking area within the town. There are 12 km C.C roads, 15 km bituminous roads, 5 km WBM roads and 10 km kutcha roads under Margherita municipal area.

For smooth traffic movement in Margherita, the plan provides 121.51 hectare of land in the land use map, which constitutes 18.44% of the total developed area. In this plan, emphasis has been given on the following aspects for effective transportation system in Margherita Master Plan Area.

- (i) Optimum use of the existing transportation system through improved traffic operation and controls.
- (ii) Improvement of the existing road network through strengthening and widening.
- (iii) Provision for adequate parking facilities.
- (iv) Development of new roads and other transport facilities.

The plan recommends development of road infrastructure as per table given below:

**TABLE NO:-20**  
**CATEGORY OF ROADS**

Category of roads	Name	Existing Width	Recommended width (Ft)
<b>Major</b>	Digboi – Margherita road NH.38	45'- 50'	70 to 80
	Margherita – Changlang road	34'	50 to 60
<b>Arterial</b>	Lazumgaon road	30'	40 to 50
<b>Sub- Arterial</b>	Margherita market road	30'	30 to 40
	Venermill market road	50'	50 to 60
	Alubari road	35'	40 to 50
<b>Other Road</b>	-----		Minimum 20 and 12 for Single plot.

At present, the Margherita Municipality has classified its roads in three categories Principal Road, Main Road & Other Road.

**Zero point** of Margherita is located in front of the Existing ASTC bus stand Margherita. Location has been shown below :-



## 5.2 OVERVIEW OF CRITICAL ROADS AND IMPROVEMENT

Margherita is well connected with the rest of the country by roads and railways. The N.H.- 38 have connected Margherita with other places as shown below: -

- a) Margherita to Digboi
- b) Margherita to Tinsukia
- c) Margherita to Dibrugarh via Tinsukia
- d) Margherita to Jagun via Ledo
- e) Margherita to Changlang of Arunachal Pradesh
- f) Margherita to Miao of Arunachal Pradesh
- g) Margherita to Deomali of Arunachal Pradesh.

Margherita is also connected with railway network from Ledo to Guwahati. The railway station of Margherita facilitates the passengers to travel to Guwahati via Tinsukia and also outside Assam. Beside train plying of taxis, buses, winger and trucks are playing a major role in transporting passengers and goods to and from Margherita.

Margherita town has gained importance in the field of industry and business owing to its industrial base and existence of nearby industrial and business towns like Ledo, Digboi, Makum and Tinsukia. This has resulted in to increase of vehicles on the roads of Margherita town. On the other hand, a good number of ASTC buses, private buses and winger ply through the town. The buses and small vehicles plying through Margherita town follow the following routes:

- a) Miao of Arunachal Pradesh to Tinsukia, Dibrugarh via Margherita.
- b) Jagun to Dibrugarh, Jorhat via Margherita.
- c) Deomali of Arunachal Pradesh to Dibrugarh via Margherita.
- d) Ledo to Tinsukia, Dibrugarh via Margherita.
- e) Margherita to Guwahati via Tinsukia (both day & night service)

## 5.3 Bus Transport Terminals

At present both ASTC and private bus stations are located along the road side of N.H-38 near the Margherita bazaar and Venermill Market Tinali. These stations serve intra - urban traffic, i.e. regional traffic but create lots of traffic congestion in the area. Another Bus station of Arunachal Pradesh State Transport is also situated near the Changlang road Tinali point.

At present Taxi and Auto stand is located near the Margherita Bazaar by the side of NH-38. This stand is also creating congestion and obstruction to the smooth flow of traffic.

In Margherita town the surface condition of the road is not up to the mark. The roads appear to be incapable of taking additional traffic load. Access roads are narrow with poor surface. Most of the traffic generated from Phaltu Gaon near Circle office to the point of Namdang River. But the entire area does not have organized parking space.

Keeping in view the above, the plan recommends expansion and renovation of the existing A.S.T.C. Bus station and proposed Bus terminus near Satsang Bhawan as shown in proposed land use plan.

The plan suggests improvement of existing Taxi & Auto stand located at Margherita market area into multiutility building with parking facility.

#### **5.4 Freight Zones Logistics**

Presently there is no truck terminus at Margherita. The loading and unloading from trucks are carried out by the side of road near Segunbari Tinali.

#### **5.5 Footpaths and Bicycle Tracks**

Footpaths are normally designed for pedestrian for pleasant and comfortable walking. In Margherita except NH-38, there is no any footpath in other roads of the town. There is no cycle track in the town.

Exclusive lane for slow moving vehicles, pedestrians along with spaces for street vendors are also essential for overall development of a town. The hawkers and street vendors also play an important role in urban economy. The notification of vending and no vending zone by the authority is mandatory as per the provisions of the Street Vendors Act, 2014. This improves the capacity of the lanes designed for motorized vehicles and increases the safety of slow moving vehicles and pedestrians

The plan suggest construction of footpath in both sides of all the roads in the town by the concerned authority. The plan also earmarks cycle track in the Jayanagar - Makum-Killa road and Thana road.

The width of footpath as per URDPFI guidelines is follows:

**TABLE NO:-21**  
**WIDTH OF FOOTPATH**

<b>Sl.No.</b>	<b>Description</b>	<b>Width(mtr)</b>
<b>1</b>	<b>Minimum free walkway width in residential / mixed use areas</b>	<b>1.8</b>
<b>2</b>	<b>Commercial/Mixed Use Areas</b>	<b>2.5</b>



The URDPFI Guideline for cycle /NMT track are given in the following table:

**TABLE NO:- 22**  
**CYCLE TRACK**

Sl. No.	Arterial Roads	SUB Arterial Roads	Distributary Road	Access Roads
<b>Non-Motorized Vehicle</b>	Segregated cycle track	Segregated cycle track	Cycle lane	Mixed/traffic
<b>Location</b>	Between carriageway or street parking and footpath on either edge of the carriageway	Between carriageway or street parking and footpath on either edge of the carriageway	On the edge of the carriage ,adjacent to the footpath or parking	Not applicable
<b>Gradient</b>	1:12-1:20	1:12-1:20	1:12-1:20	1:12-1:20
<b>Lane width</b>	2.2 to 5.0m	2.2 to 5.0m	2.2 to 5.0m	Mixed with motorized vehicular traffic
<b>Minimum width</b>	2.5 for a two lane cycle track and 1.9m for a common cycle track and footpath	2.0 for a two lane cycle track and 1.7m for a common cycle track and footpath	1.5m	1m(painted)

## 5.6 Parking

At present, there is no organized parking space for the cars, two wheelers in the market area. The cars are generally parked on the main road of the town. The roads are already overcrowded with traffic and further encroachment on road surface by cars and two wheelers has resulted obstructed traffic congestion.

The recommended equivalent car space (ECS) required for different type of vehicles as per URDPFI guidelines are given in the following table for design of parking areas.

**TABLE NO:-23**  
**PARKING SPACE**

Sl. No.	Vehicle type	ECS
1	Car /taxi	1.00
2	Two Wheeler	0.25
3	Auto Rickshaw	0.50
4	Bicycle	0.10
5	Trucks/Buses	2.5
6	Emergency Vehicles	2.5
7	Rickshaw	0.8



### **5.7 Areas with Major Traffic Congestion and Parking Issue, Accident Prone Area**

The maximum inter-town traffic volume is generated on the road starting from Phaltugaon area and moving towards Ledo along N.H-38. This is the most vital link for both to the town and the rest of the district. The second intertown traffic generating road is Thana / Vennermill Road.

The presence mixed traffic on narrow roads has accelerated traffic congestion in Margherita. The town has mainly two accident prone areas, namely the area adjacent to Satsang Bihara and Town High School. Proper road signage and marking in the road in these areas is the need of the hour. The heavy vehicles belonging to coal and tea industry ply daily through the town is also a cause of concern for public safety.

### **5.8 Improvement of Rotary & Junctions and construction of Railway fly over**

The town does not have a road rotary and plan does not foresee its requirement. However, improvement of all road junctions as per IRC guidelines is urgent and important for improving the traffic scenario.

The plan proposes two Railway fly over at Jayanagar Junction railway crossing and another at NH- 315 near Borah Hyundai Show room and junction improvement of Margherita Chariali & Changlang Tinyali

### **5.9 Street Lighting and Proposed Improvement Plan**

The town is illuminated by Margherita municipality with 2 nos. High mast light, 450nos. SV lamps of 150 watts and 400 nos. tube light of 40 watts for the convenience of the people. The municipality is preparing a project for solar light installation in the streets covering the 8(eight) wards.

### **5.10 Signage: Availability and Requirement**

The ULB, traffic and other concerned departments will assess the requirement of signage and accordingly install the signage as per the rules and regulations for the beautification of the town as well as smooth flow of traffic and public convenience.

### **5.11 Fixation of Road level in Margherita master plan area**

As per city planning norms, road levels must always be lower than that the adjoining properties they serve. Since plinth levels of once constructed building don't change (unless they are demolished under reconstruction), it should be obligatory on the part of appropriate authority to ensure that road/lane levels are not raised unnecessarily as and when they are resurfaced in subsequent years. Since this aspect is not being judiciously taken into account usually by the executing agencies during road repairs many old buildings in our cities & towns which were constructed 20-30 years ago are now at the same and in few cases even below adjoining road levels which have been raised arbitrarily without evaluating their resultant impact on these adjoining areas serve by this road network. In most well governed cities of the world, road level once fixed at the time of their initial construction remain usually same and are not tempered with later on.

The margherita town master plan is therefore prepared to identify each road and to take corrective action to fix desirable road levels after detailed survey and freeze them once for all and ensure that they don't get raised in subsequent years.



To begin with, road levels are fixed on the basis of HFL of the Margherita town which is 136.80 M and considering the existing RL of corresponding road. **Accordingly, a transportation map has been prepared with the help of contour map prepared by Office of the Executive Engineer, Drainage & Sewerage Division, Tinsukia showing the name of roads and their proposed road level and enclosed with this report.** However, implementing agencies must follow the existing rules, acts and guidelines of IRC at the time of implementation of road development works as per the above photo graph shows the bench mark ( 139.35 M) and the HFL (136.80 M). It may be mentioned here that where existing road level ( RL) is found to be above HFL, the road level is propose to be fixed at the existing road level itself. However, road level of the roads adjacent to the river bank is to fixed on the basis of plinth level of the adjoining built-up area. The road level based on HFL may be much higher than the existing plinth level of the area. Accordingly, the Margherita Municipality classified roads road level shown at Table No. **38, Pg. No 96.**

### 5.12 Major Proposals

- I. One Bus terminus is proposed at wad no 9 near Satsang Bihar and the area is earmarked in the proposed land use map.
- II. Two railway fly over at (1) Jayanagar Junction railway crossing (2) another NH- 315 near Borah Hyundai Show room
- III. Improvement of existing Auto stand in multiutility building and parking
- IV. The authority concern may develop existing bus stand with all facilities required for commuters.
- V. Considering the scenic beauty of the town, the plan recommends plantation along the major roads and development of traffic points to augment the aesthetic beauty of the town and proposed walking track behind Central field as marked in master plan.
- VI. The authority concern may take proposal to develop the right of way of abandoned national highway of the town as Bus stand and as notified parking area.

**CHAPTER 6****6 INFRASTRUCTURE, PUBLIC UTILITY & SERVICES****6.1 Physical Infrastructure****6.1.1 Water Supply**

Although Margherita town is located on the bank of the Buri Dihing River, there is no piped water supply system for the entire town. The Coal India Limited is presently supplying potable water only in the southern part of the town. For the rest of the town, the only source of water is tube well and the ring wells as ground water and surface water is readily available at Margherita town and its adjoining areas. Though the tube well and ring well are efficiently functioning, it will no longer be considered as free from contamination due to presence of a number of pit latrines. A comprehensive water supply scheme with treatment plant covering the population up to 2041 is the need of the hour. At present, the AUW&SB is executing a project for water supply scheme at Margherita.

The objective of a public protected water supply system is to supply safe and clean water in adequate quantity, conveniently and as economically as possible. Rising demand of water due to rapid urbanization is putting enormous stress while planning the water supply system for an area; it is evident to consider water conservation aspects, which may be possible through optimal use of available water resources, prevention and control of water and effective demand management

**6.1.2 URDPFI Guideline's for Water Requirement**

As per URDPFI guidelines the norms for water requirement for institutional buildings are given below:-

**TABLE NO:- 24**  
**REQUIREMENT FOR INSTITUTIONAL BUILDINGS**

Sl.No.	Institutions	Liters per head per day
1.	Hospitals (including laundry )	
a)	No. of beds exceeding 100	450 ( per bed)
b)	No. of beds not exceeding 1000	350 (per bed)
2.	Hotels	180 ( per bed)
3.	Hostels	135
4.	Boarding Schools	135
5.	Restaurants	70 ( per seat)
6.	Day school / colleges	45
7.	Offices	45
8.	Cinema, concert halls and theater	45

In addition to the above the fire- fighting water demand is also as a function of population. It is desirable that one-third of firefighting requirements from part of the service storage. The balance requirement may be distributed to several state tanks of strategic points. These strategic points may be filled from nearby pond streams or canals by water tanker's wherever feasible.

The plan also recommends preparation of a comprehensive potable water supply scheme as per guideline of CPHEEO manual of Govt. of India to cater the needs of the estimated population of 94194 up to 2041 by a competent authority as the present scheme is designed for municipality area only.

### **6.1.3 Drainage system**

The drainage system at Margherita town is relatively good compared to nearby towns. This is due to presence of natural channels in the both sides of town connecting the mighty Buri Dihing River. The entire master plan area is under the Basin of Buri Dihing River. The undulating surface also eases out the rain and sewerage water in to the river channels. The NH-38 divides the entire master plan area in to four sub basin of main Buridihing basin. However, in the plain area, namely the Polo field area and Lazum Ramkrishna area, the existing kutchha drains do not have sufficient cross section to drain out surface run off after heavy rainfall resulting in to water logging. A map showing flow direction/slope and water logging area is enclosed in the report. Presently, a project on improvement on storm water drainage of Margherita town is undertaken jointly by the office of the Margherita Municipality and Executive Engineer, Drainage and Sewerage Division, Town& Country Planning, Tinsukia to ease out the water logging and artificial flood problem of plain area. At present, Margherita municipal area has 20 km pucca drains, 21 km storm water drains is proposed under NLCPR scheme and 10 km kutchha drains are in existence but still 35% of the town area is without any drains. The plan recommends hierarchy drainage system for the entire master plan area.

### **6.1.4 Sanitation**

In Margherita Master Plan area of present more than 50% household use septic tank. The percentage of household who used septic tank is almost double in urban area then in rural area. In the Master plan area, 16% of household as open pit or other means which are not conducive for health and environment. This type of condition is prevailed in all over India. As such, The Government of India in the year 2014 introduced the Swachh Bharat Mission (SBM) which is being implemented by the Ministry of Urban development and Ministry of Drinking and sanitation for urban and rural areas respectively. The main objective of the mission is – Elimination of open defecation, Eradication of manual scavenging, Modern and scientific Municipal Solid Waste Management, to effect behavioral changed regarding healthy sanitation practices, generate awareness about sanitation and its linkage with public health, capacity Augmentation for ULB's.

Swachh Bharat Mission (SBM) will improve the health conditions of every Indians. This practice will be able to prevent many types of diseases in the country and we will be able to have a happy and healthy society. SBM can be able to build a better eco-friendly environment in the country and can give better life to our upcoming generations.

SBM will also help in generating employment through tourism and boost India's Gross Domestic Product (GDP).

Unhygienic condition's is one of the major root causes of diseases/illness. Any disease or illness has financial impact both in terms of expenditure and potential revenue earning. As such, SBM will have positive impact on India's health care sector. SBM will plug the loss due to unhygienic and lacks of cleanliness and will help to ease burden on existing health care facilities.

SBM will lead to Health India which in turn increases productivity of Indians. High productivity means high earning potential. Under current economic conditions, India desperately need Foreign Direct Investment (FDI) for this the country must be clean.

SBM will benefit socially and financially each & every citizen of India. If we want financial growth then we have to collectively make. SBM is a roaring success in future. SBM is one of the critical links towards economic success of India.

Under SBM it is estimated that about 20% of the urban household in towns, who are currently practicing open defecation are likely to use community toilets as a solution due to land and space constraints in constructing individual household latrines. For this component beneficiaries shall be groups of household in urban area whose members practice open defecation and who do not have access of the household toilets and for whom the construction of individual household toilet is not feasible.

Under SBM, ULB's will ensure that a sufficient number of public toilet to be constructed in the town. All prominent places within the town attracting floating population should be covered. Cares should be taken to ensure that these facilities have adequate provision for man, woman and facilities for the disabled (e.g. ramp provision, Braille, signage etc.) wherever necessary.

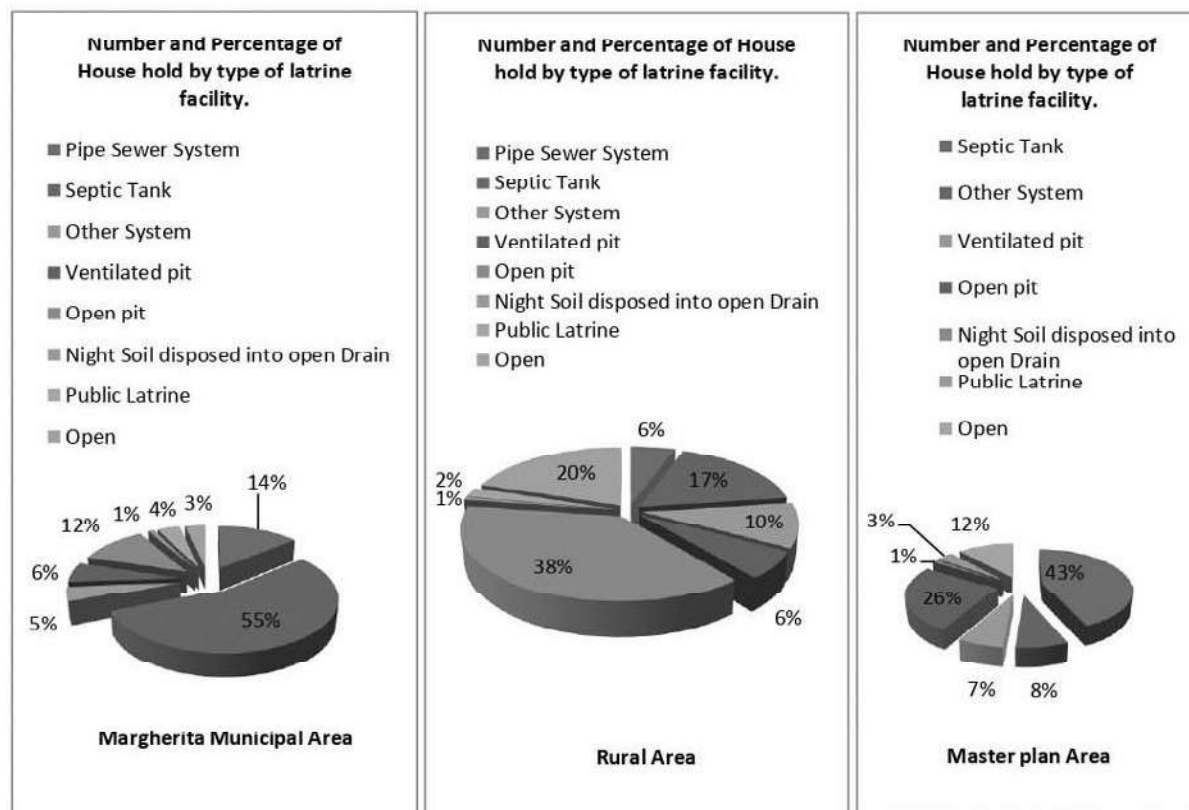
Presently there are 5(five) public toilets in Margherita and located at Margherita chariali points, near Margherita market auto stand, lower market area, near Shiv Mandir of Margherita market and near the Civil hospital. Margherita Municipality also constructed a community toilet at Dihingporia of ward no-06. These toilets to some extent benefit the outside peoples who come to the Margherita for Marketing and health services. The short falls of public toilet in the planning area will be fulfilled by SBM in coming days.



**TABLE NO:- 25**  
**NUMBER AND PERCENTAGE OF HOUSE HOLD BY TYPE OF LATRINE FACILITY.**

TYPE OF LATRINE FACILITY	Margherita Municipal Area		Rural Area		Master plan Area	
	No. of Household	Percentage (%)	No. of household	Percentage (%)	No. of household	Percentage (%)
Pipe Sewer System	837	13.97%	243	5.45%	1080	10.34%
Septic Tank	3292	54.96%	776	17.44%	4068	38.96%
Other System	288	4.81%	449	10.09%	737	7.06%
Ventilated pit	370	6.18%	271	6.08%	641	6.14%
Open pit	703	11.73%	1704	38.27%	2407	23.05%
Night Soil disposed into open Drain	62	1.03%	27	0.60%	89	0.85%
Public Latrine	232	3.88%	100	2.25%	332	3.18%
Open	206	3.44%	882	19.82%	1088	10.42%
<b>TOTAL</b>	<b>5990</b>	<b>100%</b>	<b>4452</b>	<b>100%</b>	<b>10442</b>	<b>100%</b>

**FIGURE :-19**  
**HOUSEHOLD BY TYPE OF LATRINE FACILITY**



**6.1.5 URDPFI Guidelines for Public Toilets**

The general standard for public toilets in public area and modified norms for public toilets in public places and roads recommended in URDPFI guideline are given below:-

**TABLE NO:- 26**  
**NORMS FOR PUBLIC TOILETS IN PUBLIC AREA.**

TYPE	NORMS FOR TOILETS
Public toilets	On road and for open areas every 1 Km. including parks, open air theater, car parks and fuel station. Toilets shall be disabled friendly and in 50 : 50 ratio ( M / F)
Signage	Signboards on main streets shall given directions and mention the distance to reach the nearest public convenience of visitors. Helpline number shall be pasted on all toilets for complaints / queries
Modes	Pay and Use or free in pay and use toilets entry is allowed on payment to the attendant.
Maintenance / Cleaning	The toilets have both men and women attendants. Alternatively automatic cleaning cycle covering flush, toilet bowl, seat, hand wash basin, disinfecting of floor and complete drying after each use can be adopted. Public toilets shall be open 24 hrs.

The urban local body can follow the above norms for construction the public toilet and maintenance thereafter.

**6.1.6 Network Sewerage**

Like the rest of the towns of the state, Margherita also does not have sewerage network and treatment plant. Human night soil is generally disposed at conventional septic tanks or low cost sanitary pits. Till the execution of the sewerage scheme, it is recommended to encourage the people to construct sanitary latrines of their own and to cover poor families. Under Swachh Bharat Mission the use of service latrine should be banned as per law for the health and hygiene of the community

**6.1.7 Solid Waste Management**

At present garbage of Margherita town are dumped near Namdung T.E grant No. 277 (F) on a plot of land measuring 17 Bighas. Since the town is expanding in recent times, so the situation only stands to worsen unless the concerned authorities give a serious thought to the problem. Accordingly, this plan suggest for Solid Waste Management of Margherita Master Plan area as per Solid Waste Management Amendment Rules 2020& implement of Faecal Sludge Treatment Plan.

The town generates a good amount of biodegradable solid waste besides plastic waste and malted wastes. So, this plan has suggested a few steps for scientific solid waste management system in Master Plan Area. This includes segregation of bio-degradable and non-biodegradable solid waste at source, construction of compact pits at all residential houses in order to produce compost wherever feasible, introduction of specific litter bins for collection of segregated bio-biodegradable and non-biodegradable solid waste for soil conditioning and recycling purpose respectively, and doing away with the system of dust bins along roads which is a major cause of pollution. For solid waste management, the plan earmarked an area at ward no 4 near cemetery for setting up of obnoxious industry.

The duties and responsibilities of ULB's as per revised Solid Waste Management rules of 2016 are given below:

- (i) The ULB's shall prepare a Solid Waste Management plan as per state policy within six (6) months.
- (ii) Arrange for door to door collection of segregated solid waste; integrate rag pickers/informal waste collectors in solid waste management.
- (iii) Frame bye-laws incorporating the provisions of these rules within one year, prescribed user fee.
- (iv) Direct waste generators not to litter and to segregate the waste at source and handover segregated waste to authorized waste pickers, the waste collector authorized by the ULB.
- (v) Set up material recovery facilities or secondary storage facilities and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste.
- (vi) Established waste deposition center for domestic hazardous waste and ensure safe storage and transportation of the domestic hazardous waste to the hazardous waste disposal facility or as may be directed by the state pollution control board.
- (vii) Direct street sweepers not to burn tree leaves collected from street sweeping and store them separately and hand over to the waste collectors or agency authorized by ULB.
- (viii) Provide training on solid waste management to waste pickers and waste collectors.
- (ix) Promote setting up of decentralized compost plant or bio – meth nation plant at suitable locations in the markets or in the vicinity of markets ensuring hygienic conditions.
- (x) Collect separately waste from sweeping of streets, lanes and by-lanes daily or on alternate days or twice a week depending on the density of population, commercial activity and local situation.
- (xi) Involve communities in waste management and promotion of home composting, bio – gas generation, decentralized processing of waste at community level subject to control of odour and maintenance of hygienic conditions around the facilities.



- (xii) Educate workers including contract workers and supervisors for door to door collection of segregated waste and transporting the unmixed waste during primary and secondary transportation to processing or disposal facility.
- (xiii) Ensure that the operator of a facility provides personal protection equipment including uniform, fluorescent jacket, hand gloves, rain coats, appropriate foot wear and masks to all workers handling solid waste and the same are used by the work force.
- (xiv) Create public awareness on solid waste management.

### 6.1.8 Electrical Sub –Station and Major Transformers

Power requirement of Margherita Master Plan Area is meeting by the ASEB grid. There is total 4142 electric connection in the town and 732 households are not electrically connected. Margherita is also facing the problem of acute scarcity of electric power like the other towns of the state. In peak hours load shedding for one or two hours is a way of life for its residents. Since the consumption is increasing at a fast rate, the department concerned fails to cater to the needs of the people causing load shedding a bitter experience. The authority concern provides 2 no's High mast light, 450 no's SV lamps of 150 watts and 400no's Tube light of 40 Watts in the street of Margherita town for the benefit of the people. There is one electric sub-station at Margherita town.

Accordingly, the plan proposes for Electric Sub Station for uninterrupted electricity in whole margherita town.

## 6.2 Social Infrastructure

### 6.2.1 Education facilities

The progress and development of a place is closely related to expansion and development of education. The first education institution at Margherita was established in the year 1918 by some education minded people of Margherita. In the later years Primary, M.E. and High school was set up at the town. Assamese medium Margherita Public Higher Secondary School and Bengali medium AR&T Company High School are the two leading schools in the town. These two schools contributed a lot to the expansion of education and creation of man power in Margherita. Margherita College was established in the year 1978 and this college played an important role for the expansion of higher education in Margherita town as well as its suburbs. Presently there are more than 40 Govt. L.P. Schools, M.V. Schools, M.E. Schools, High School & Higher Secondary Schools within Margherita Master Plan Area beside a number of private Schools. There is no doubt that the teachers and the professors come from various places to provide services in the educational institution and the students have passed out from the educational institutions have been enriching the education field of Margherita. At present in Margherita municipal area, there are 4 Govt. High School and 5 private primary school. There are total of 35 No's of school in Margherita municipal area.



**6.2.2 URDPFI Guideline for Education facilities****TABLE NO:- 27****NORMS FOR PRE-PRIMARY NURSERY SCHOOL TO HIGHER EDUCATION**

<b>Sl. No.</b>	<b>Category</b>	<b>Student Strength</b>	<b>Population served per unit</b>	<b>Area Requirement</b>	<b>Other Controls</b>
1	Pre- Primary Nursery School	-	2500	0.08 Ha	To be located near park
2	Primary School ( Class I to V )	500	5000	Area per School = 0.40 Hec. A) School building area = 0.20 Hec. B) Play field area = 0.20 Hec.	Playfield area with a minimum of 18 m X 36 m to be ensured on effective play.
3	Senior Secondary School ( VI to XII)	1000	7500	Area per School = 1.80 Hec. A) School building area = 0.60 Hec. B) Play field area = 1.00 Hec. C) Parking area = 0.20 Hec.	Playfield area with a minimum of 68 m X 126 m to be ensured on effective play.
4	Integrated School without hostel facility ( Class I to XII )	1500	90000 To 1 Lakh	Area per School = 3.50 Hec. A) School building area = 0.70 Hec. B) Play field area = 2.50 Hec. C) Parking area = 0.30 Hec.	To be located near a sport facility

5	Integrated School with hostel facility ( Class I to XII)	1500	90000 to 1 Lakh	Area per School = 3.90 Hec. A) School building area = 0.70 Hec. B) Play field area = 2.50 Hec. C) Parking area = 0.30 Hec. D) Residential area = 0.40 Hec.	To be located near a sport facility
6	School for Physically Challenged	400	45000	Area per School = 0.70 Hec. A) School building area = 0.20Hec. B) Play field area = 0.30 Hec. C) Parking area = 0.20 Hec.	To be located near park or sport facilities
7	College	1000 To 1500	1.25 Lakhs	Area per School = 5.00 Hec. A) School building area = 1.80 Hec. B) Playfield area = 2.50 Hec. C) Parking area = 0.30 Hec. D) Residential area = 0.30 Hec.	

From the survey it has been found that most of the education institution except Govt. Higher Secondary School and Margherita College, the area of the school is not sufficient as per **URDPFI** guidelines and there are no adequate playfields and parking facilities.

So, this plan suggest to take measures by the education department as well as private institution to increase the area of primary school upto 0.40 Hectare including playfield area, for Higher & Higher Secondary School upto 1.80 Hectare including playfield and parking area and for the intermediate school upto 3.50 hectare including playfield, parking facility and hostel facility as per URDPFI guideline.

This plan also suggest for the provision for school for physically challenged child / person's in an area of about 0.70 hectare for the enrollment capacity of 400 with adequate playfield and parking facility by the education department or by any NGO associated with social upliftmen of the region.

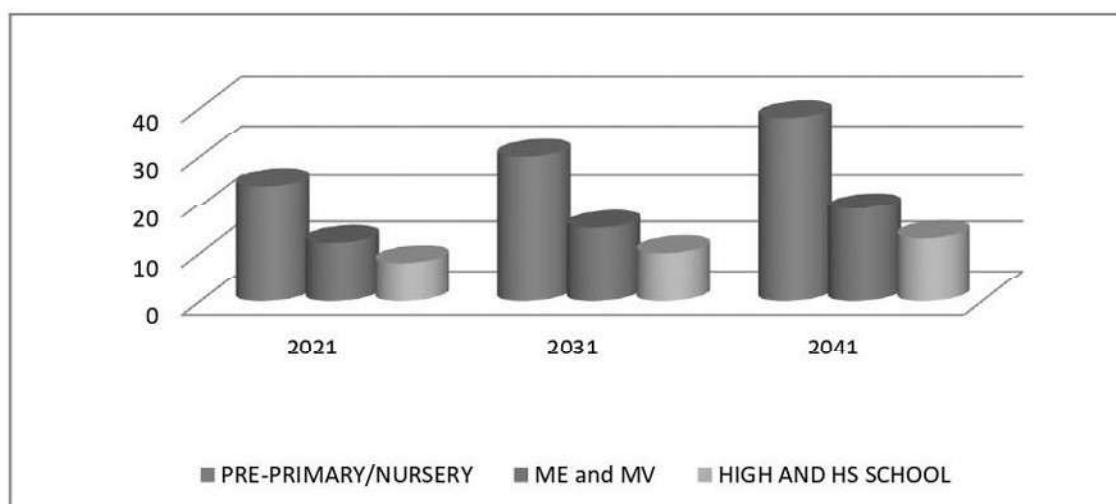
Table shows the number of students and additional school required in Margherita Master Plan Area during 2011-2041.

As per URDPFI guideline, the additional school required in MMPA upto 2041 for projected population is given in the following table:

**TABLE NO:- 28**  
**ADDITIONAL SCHOOL REQUIRED IN MMPA**

YEAR	PROJECTED POPULATION	ADDITIONAL SCHOOL REQUIRED		
		<u>Pre-primary /Nursery</u> Student strength- 500Population	<u>Primary</u> Student strength- 500Population served per unit-	<u>High/Higher Secondary School</u> Student strength- 1000Population served per
2021	57962	24	12	8
2031	73705	30	15	10
2041	94194	38	19	13

**FIGURE :-20**



Source: Estimated by Town & Country Planning, Assam, Dibrugarh

The shortage of schools in the plan area, to some extent has been fulfilled by the private institutions at present and it is also hope that in the future, private institutions will play an important role to mitigate the shortage of primary schools as well as High and Higher Secondary schools.

### 6.2.3 Health Care facilities

In Margherita in addition to the existing Civil hospital, a new 100 bed Civil Hospital was inaugurated in the Year 2010. In this new Civil hospital Block- A having an OPD counter, Minor OT, immunization room, dental room, dispensary, general indoor facilities for patients, Block- B- having laboratory, sonography room, blood bank, X-Ray room, Baby room, a septic Labour room and Block –C maternity room, gynecology, maternity OPD, pediatric and neonatal stabilization unit etc . Besides there are two public health centres in MMPA situated at Alubari and Makum Pathar

Gaon. In Margherita town there are also three small private nursing homes which serves the people of the town as well as nearby villages. In spite of that, considering the population growth in Greater Margherita area, medical facilities at present are not adequate, as a result large no of patients rush to Dibrugarh for better treatment

#### 6.2.4 URDPFI Guideline for Health Care Facilities

In the health care facilities the size of a hospital depends upon the hospital bed requirement, which in turns is a function of the size of the population it serves. As per URDPFI guideline the calculation of number of beds is based on:-

- A) Annual rate of admission as 1 per 50 population
- B) Average length of stay in a hospital as 5 days.

Since the projected population for Margherita Master Plan upto the Year 2041 is 94,194, as such, the number of beds required for this population is :-

- i) No. of beds days per year =  $(94,194 \times 1/50) \times 5 = 9419$
- ii) No. of beds required with 100% Occupancy =  $9419 / 365 = 26$

The classification of healthcare facilities as URDPFI guideline is given in the following table:-

**TABLE NO:- 29**  
**HEALTHCARE FACILITIES**

Sl. No.	Category	No. of Beds	Population served per unit	Area Requirement
1	Dispensary	-	15000	0.08 to 0.12 Ha
2	Nursing home, Child Welfare & Maternity Centre	25 to 30 beds	45000 to 1.00 Lakhs	0.20 to 0.30 Ha
3	Polyclinic	Some observation bed	1.00 Lakhs	0.20 to 0.30 Ha
4	Intermediate Hospital	200 Initially the provision may be for 100 beds including maternity beds	1.00 Lakhs	Total Area = 3.7 Ha. i) Area for hospital = 2.70 Ha. ii) Area for Residential Accommodation = 1.00 Ha.
5	Family Welfare Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
6	Diagnostic Centre	As per requirement	50,000	Total Area = 500 Sq.m to 800 Sq.m
7	Rehabilitation Centre	-	-	As per requirement

This plan suggest to take appropriate measures by the health department for the provision of 7 nos. of dispensaries at various location within the Master Plan Area covering an area of 0.08 – 0.12 hectare per dispensary serving at least 15,000 person's. This plan also asked the health department to upgrade the existing civil hospital upto 200 beds with all modern healthcare equipment or serving at least 1 (One) Lakh population and asked the authority concern to increase the hospital area upto 3.7 hectare for the hospital building as well as the area for residential accommodation of the hospital staff. This plan also suggest to set-up a family welfare centre to serve at least 50000 person's by the health department and also a Re-habilitation centre by the Govt. or by any NGO for the upliftment of deprived class of the community.

#### **6.2.5 Parks and Recreation Spaces etc.**

Margherita Master Plan Area has only 2.88 hectare of land for recreational facilities. The India Club was established in the year 1925 at the initiative of the employees of AR&T Company. There is also a library within the club complex. Coal India had constructed a permanent theatre hall for the up liftnen of cultural activities. There is one outdoor stadium and one indoor stadium at Margherita for facilitating outdoor and indoor games to the needy sportsmen. There are two parks and three community halls within the town area. In addition to this, numerous vacant plots of land serve as play grounds. But now these are occupied by newly constructed buildings leading to shortage of open spaces in the planned area. Within the Master Plan Area there is only 0.57 hectare of land for recreational purpose per 1000 population, which falls far below the minimum accepted standard of 1.62 hectare per 1000 population for developing a country like India. The plan proposes an indoor stadium at Namdang Tea opposite St' Mary's School and improvement of existing eco park and other parks including development of existing cremation and burial ground in Margheriata town.

## **CHAPTER - 7**

### **7. ENVIRONMENT AND CITY BEAUTIFICATION PLAN**

#### **7.1 Description of eco-friendly areas –**

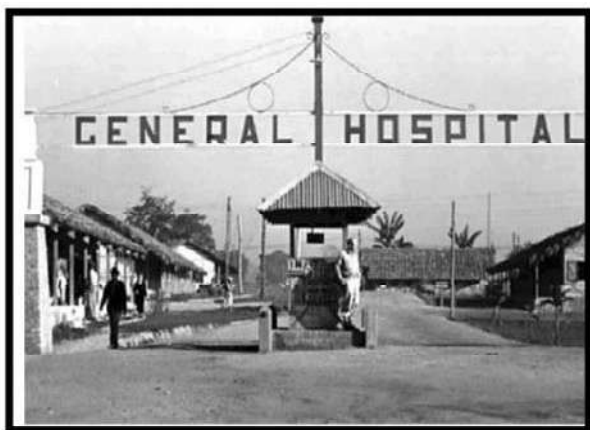
The river Buri Dihing flowing through the Margherita divides Master Plan area in two parts. In the northern part of the river Buri Dihing there are two water bodies and a water channel functioning as a natural water reservoir.

There are mainly four heritage sites in Margherita. The first coal museum the “*Coal Heritage and Museum*” of North East India is in Margherita preserving the 120 year old mining history. All the material and equipment like various types of machines, vehicles, cameras projectors and antiques including important documents, photography’s etc. related to Margherita- Ledo mining history have been displayed in the museum for public viewing.



Secondly India’s fifth and Assam’s second plywood factory was established in 1925 in Margherita. It was established by a British company at upper Buri Dihing reserve forest (present ward no 2).





Thirdly, the 20<sup>th</sup> general hospital was built in Margherita during 2<sup>nd</sup> World War II to serve the wounded soldiers of the war. Beginning with a few shacks, the hospital ended up becoming the largest hospital in the **China-India-Burma**.

However, after the end of war, the hospital closed its medical services. Now, one could only see the dilapidated brick walls in place of the once famous 20<sup>th</sup> General Hospital.



Margherita region is also known for its black diamond (coal) discovered by the British.

The British discovered the collieries and started mining work at Margherita – Ledo in the year 1881 through British owned Assam Railways & Trading Company.

## 7.2 Plan/Measures for protection and conservation of environmentally- friendly zones.

Being environmental friendly simply means having a lifestyle that is better for the environment. It's all about taking small steps towards mother earth so as to make this planet a better place for our communities and generations to come. A good way would be to start with conserving water, driving less, walking more, consuming less energy, buying recycled products, eating locally grown vegetables, joining environmental groups to combat air pollution, producing less waste, planting more trees and many more. The more that we do on our part the faster we will create an environment of living that promotes sustainability.

In the environmentally friendly zone, there is more than just a good recycling programmed in place. People of the town who are committed to conservation and preservation of resources should encourage options like community play grounds, public transportation, green construction and work to change the way that fossil fuels and other resources are used to support community services.

This plan suggest following proposals for protection and conservation of environmental friendly zones-



- (i) People of Margherita town should join hand with environmental groups to protect the town and make the environment clean and green.
- (ii) Reduce, reuse, recycle waste hierarchy is the order of priority of actions to be taken to reduce the amount of waste generated and to improve overall waste management processes and programs.
- (iii) Plantation habit should be grown up among the people. For this necessary awareness camp should be organized by competent authority for conservation of natural resources and composting system.
- (iv) Steps should be taken by the authority to stop people from littering on roads. Instead, educate them to put trash and garbage in dustbins. The pile of garbage on road hampers the beauty of the city and also pollutes the air

### **7.3 City Beautification Plan/ Proposals-**

To improve town's appearance and esthetic view, neighborhoods often try to update what is known as streetscape, which pertains to the area between the driving lanes and the edge of the private property. Partly this is a popular strategy because it is public space and it's easy for the government to dictate what will happen there. In truth, streetscape can be quite effective in uniting block faces or a series of blocks that are discordant in some way, because streetscape often includes plantings, the effect is to soften the view created by streets and hopefully sidewalks. Care in the choice of materials and in the quality of the installation makes all the difference in this form of beautification.

In addition to streetscape, sometimes we need a focal point. This might be public art and open air theatre, fountains, a clock tower or grouping of tall grasses. If we already have a lonely statue or old historical building with nothing around it, maybe we should add planting beds of considerable size, an inviting bench or two, and maybe an interpretive sign explaining the rest of the store". A tree planting project, either on a vacant plot, in a park, or in the parkway between the sidewalks and the street is great for improving town's appearance over the course of a few years at a relatively low cost. Voluntary schemes should be taken up by neighborhood basis for cleaning up the park of the town. Project should also be taken up for cleaning the river or stream. Litter collects on the banks and then ultimately in the water, especially when no trash will be dumped.

### **7.4 Roadside Plantation-**

The main object of road side plantation is to provide protection to road, traffic, check soil erosion, food, fuel, fodder and timber to the society and mitigate climate change issues. Plantation is durable assets that produce fruits and raw-materials for agro based industry, and also generate livelihood after 7 to 10 years.

This plan suggest for road side plantation and marked in the master plan and asked the social forestry department to prepare project on road side plantation with details of road to be covered ,

length of road and species of plants to be planned with numbers of plants for entire Margherita Master Plan area.

Plantation of fruit bearing plants, suitable to local agro-climatic condition should be done in every area of the Master plan. The authority concern should take steps for organizing camp and awareness program for road side plantation and educate the people about the benefits of road side plantation including its impact on city's landscape.

### **7.5 Urban Agriculture and Urban forestry.**

Urban Agriculture is the new culture that is catching up in emerging cities. Since the population growth rate is very high, natural resource to feed the increasing population in coming days is going to be a difficult task. So, urban agriculture is seen as a big solution to the problem.

Urban forestry is the careful care and management of tree in urban settings for the purpose of improving the urban environment. Urban forestry advocates the role of trees as a critical part of the urban infrastructure. Urban forest function is thus often oriented toward human outcomes, Such as shade, beauty and privacy. Urban forests bring many environmental and economic benefits to town. Among these are energy benefits in the form of reduced air conditioning, reduced heating by shading buildings, homes and roads, absorbing sunlight, reducing ultraviolet light, cooling the air and reducing wind speed.

So, urban forestry scheme should be taken by competent authority for afforesting degraded forest land in the Margherita Master plan Area. This type of scheme will act against climate change by creating a carbon sink and against air pollution in the town. This plan also suggests for starting tree surveys in the town which can be conducted by NGO and college or school student's. A plan should be framed to create small nurseries in Govt. school as well as in private institution where there is extra space.

### **7.6 Public Rain Water Harvesting Scheme**

Rainwater harvesting is a process involving collection and storage of rain water that runs off natural or man-made catchment areas, e.g. roof top, Compounds, rock surface or hill slopes or artificial repaired impervious/semi-pervious land surface.

Due to deforestation and the consequent ecological imbalance, the ground water level is going down day by day. The constant rising demand of water supply especially from the urban areas does not match with the surface water sources, as a result of which the water reserves beneath the ground level are over exploited. This consequently results in the water level depletion.

Water harvesting apart from recharging the ground water level, increases the availability of water at a given place at a given point of time. It also reduces the power consumption. It further reduces the run off which chokes the storm water drains, artificial flooding, chances of soil erosion and improves the quality of water. The plan suggest rain water harvesting scheme to be implement by a competent authority. Moreover, the urbanization trend reduces the infiltration rate of rain water into the sub-soil there by reduces ground water recharging.

#### **7.6.1 Development of Parks and Recreation Spaces-**

The Plan recommends 3.47 hectare of land for recreational purposes. The land earmarked for parks and recreation is not sufficient for the increasing population. This plan is not in a position to increase the land for parks and recreation as required for the proposed population due to non-availability of Government land in the plan area. The plan envisages a Town Hall to meet the social and cultural needs of the town and also recommends modernizing the existing play ground with adequate infrastructure. The plan also proposes an indoor stadium at Namdang Tea and a small children park at ward no.6, near coal India guest house.

#### **7.6.2 URDPFI Guideline for Parks and Recreation Spaces**

The provision of socio- cultural facilities shall correspond to the changing urban demography and work life style.

**TABLE NO:-30**

#### **NORMS FOR SOCIO- CULTURAL FACILITIES**

<b>SL.No.</b>	<b>Category</b>	<b>Population Served per unit</b>	<b>Land Area Requirement ( Sq.m)</b>
1	Aganwadi- Housing area / Cluster	5000	200-300
2	Community Room	5000	750
3	Community hall / Marriage hall / Library	15000	2000
4	Music, dance and drama center	1 Lakh	1000

**TABLE NO:-31****NORMS FOR RECREATIONAL FACILITIES**

Sl.No.	Category	Population Served per unit	Area Requirement (Ha)
1	Housing Area Park	5000	0.50
2	Neighborhood Park	15000	1.00
3	Community Park	1 Lakh	5.00

**TABLE NO:-32****NORMS FOR SPORTS FACILITIES**

Sl.No.	Category	Population Served per unit	Area Requirement (Sq. M)
1	Residential unit play Area	5000	5000
2	Neighborhood Play Area	15000	1.5
3	Town sports center	1 Lakh	8.00

**7.7 Beautification of Major Transit Zone**

Margherita has emerged as a major transit zone for Coal and Tea mainly originating from Ledo and outskirts of Margherita town. The Coal and Tea of Margherita region transit to all over India. So, it is very much essential to beautify and upgrade the major traffic points like bus stand, Railway station, market area of this emerging transit zone of upper Assam.

**7.8 Road Signage and Street Furniture**

Road signs are signs erected at the side of or above roads to give instruction or provide information to road users. The earliest signs were simple wooden or some milestones. But in course of time, many states of India have been adopting pictorial signs or otherwise simplified and standardized their signs to overcome language barriers and enhance traffic safety, such pictorial signs use symbols in place of words.

Street furniture is a collective term for objects and pieces of equipment installed on streets and roads for various purposes. It included Benches, traffic barriers, bollards, post boxes, phone boxes, street lamps, traffic lights, traffic signs, bus stops, taxi stand, public lavatories, fountains, public sculptures and waste receptacles. An important consideration in the design of street furniture is how it affects road safety.

In Margherita Master Plan Area existing road signs and furniture are inadequate for increasing traffic and those are not also scientifically designed.

So, the plan suggests to authority concern to take steps for the installation of warning, priority, prohibitory, mandatory, information, facilities, service, direction, position and indication signs in the roads of Margherita town, so that local people as well as outsiders can be benefitted and road safety can be maintained.

In Margherita Master Plan area presently, there is no street furniture necessary for the public. The concerned authority should take steps for the construction of public lavatories at important public places and installation of benches in the park and public places, post boxes, bus stop, taxi stand, waste collectors etc.

This plan recommends for preparation and execution of a city beautification plan covering street light, traffic signal etc. that will enhance the beauty of this resourceful town.

## **7.9 Rivers and Urbanization**

Historically settlements have grown along the rivers. Most of the towns in India were developed around rivers because they played a major role in sustaining the town itself. River provides water, support natural processes – like flood prevention and also provide rich bio-diversity which are vital lung spaces for the town. These are extremely vital to the towns as plants for example: have a cooling effect, helping to lower surface and air temperatures by providing shade and releasing moisture into the air. They also manage floods as most of the plant species that grow on river banks absorb a lot of water, reducing flood energy which is a threat to people and buildings. Rivers also help to connect communities create opportunities for recreation and bring people together.

### **7.9.1 River Centric Planning**

The river Buri Dihing divides Margherita Master Plan area into two parts. There is a need for new thinking for ‘River towns’. There is need for the residential of these towns to ask “what can we do for the rivers?” Hearing from experiences of Namami Brahmaputra, it is seriously felt that a new river centric thinking in planning for towns situated on the banks of rivers is the need of the hour. The river health needs to be mainstreamed into urban planning process by development of Urban River Management Plans. Towns should be responsible for rejuvenating their rivers. It has to be done not just with the regulatory mindset but also with development and facilitatory out look.

### **7.9.2 Abstract**

Most of the towns in Assam are river centric and Margherita is not exception of that, which signifies that the interactions between an urban centre and its rivers are complex, reciprocal and collaborative. With urbanization and unplanned extraction of resources, it has been observed that the river’s morphology has been changed, thus plummeting its capacity to deliver ecosystem services, further adding excess runoff and diffuse pollution loads. On the other hand, river floods can damage the town in return. The floods had major short as well as long term impacts on the lives of people residing in the affected areas.



Nevertheless, there are potential aids in both directions. By good management and strict guidelines, a town with its residents can achieve increased land values, acceleration in economic efficiency, recreational aesthetic worth which can increase further environmental sustainability of the town with the development of the river system.

### 7.9.3 Introduction

The river Buri Dihing passing through Margherita town is a lifeline of the town. But due to unprecedented urbanization and household activities, the river is getting progressively polluted. The pollution load has been increasing over the years with increased volumes of waste water finding their way into them. The situation is likely to further intensify due to impacts of climate change on the water resources, including river. Further, the flood plains of the river Buri Dihing in Margherita urban area have also witnessed construction activities including random and unauthorized residential development which have severely degraded the overall natural environment of flood plains of river Buri Dihing. In some places in the banks of river Buri Dihing erosion is creating a problem.



River Pollution at Buri Dihing river, Margherita



Erosion at the bank of Buri Dihing, Margherita

### 7.9.4 Need for Urban River Zone Conservation and mainstreaming it with Urban Planning.

Due to the pressure of urbanization and population growth in Margherita, the river front areas of Buri Dihing are getting degraded in terms of poor water quality, limited access, formation of slums etc. and are often found functioning as open sewers or dumping ground.

Waterfronts have a long history of changing types and levels of uses and are now coming back into potentially thriving and layered public use. As such, the Govt. has taken initiative for river front development to improve the overall riverine environment. Waterfronts can be developed with different functioning and activities like parklands, recreational public place and as a retail or tourist centre. Studies also suggest that mixed use development along the waterfront is ideally suitable and beneficial, both for the community and town authorities as it not only provides wide public access to the riverfront but also contribute in the economic development of the town. As such, this plan suggest for the development of riverfront of the river Buri Dihing by the concerned authority, so that the people of Margherita can able to consume the fruit of river Buri Dihing.



Picnic spot at Buri Dihing river, Margherita

### 7.9.5 Objectives and Purposes of River Centric Planning

Broad objectives of River Centric Planning and Urban River Management are :-

1. To highlight the need for River Centric Planning and Urban River Management Plans for the guidance of town authority.
2. To attempt a framework for river water conservation and development of river waterfronts.
3. To recommend suitable planning strategies for river water management and river front development as a part of sustainable urban planning and development to transform the riverfront as a place where people can live, work and utilize and give them back the same riverfront through improvements in public access and addition of green spaces along river banks bringing out a multi-purpose riverfront.



Green spaces along Buri Dihing river, Margherita

4. To recommend development regulations / zoning for river front developments.

Sustainable urban planning and development has to take into consideration that river Buri Dihing at Margherita region requires prioritized attention to ensure that the river is clean, free of any untreated discharge of waste water, erosion free and the flood plains are not only protected from the construction activities but also becomes the hub of recreational activities without compromising the overall natural atmosphere of not only river but of air, sound and wildlife.

### 7.9.6 “River Zone” and its Regulating Intents

As per River Centric Master Planning and Urban River Management and Planning guidelines of Ministry of Housing & Urban Affairs, Govt. of India : “The concept of flood plain zoning is to regulate land use in the flood plains to –

- (a) Restrict damage to land surface and built-up developments caused by floods.
- (b) Restrict environmental damages to the river and its abutting ecologically sensitive zones arising out of the land-use occupancies in such zones.”

This plan considers the following river regulation zones of Buri Dihing at Margherita depending upon the permission granted to carry out developmental activities.

1. **No development Zone and:** upto 50 meters from the High Flood Line (HFL) in past 50 years NDCZ (No Development and Construction Zone).
2. **Prohibited Activities Zone:** upto 100 meters from the HFL in past 50 years (NDCZ). This zone is subjected to frequent flooding and most vulnerable with adverse impacts on human activities. In case the presence of embankments in the floodplain area, this zone will extend from the outer side embankment upto 50 m further.
3. **Restricted Activities Zone:** This zone includes the floodplain areas which are less frequently affected by floods and lie further from the river. Its limit extends from the outer limits of prohibited zone upto 200 m further. Few restricted developments are recommended in alignment with activity recommendations as per zoning regulations.
4. **Regulated Activities Zone:** From outer limit of restricted zone to 1000 m MIZ (Medium Impact Zone). Certain activities will be permitted in this zone.

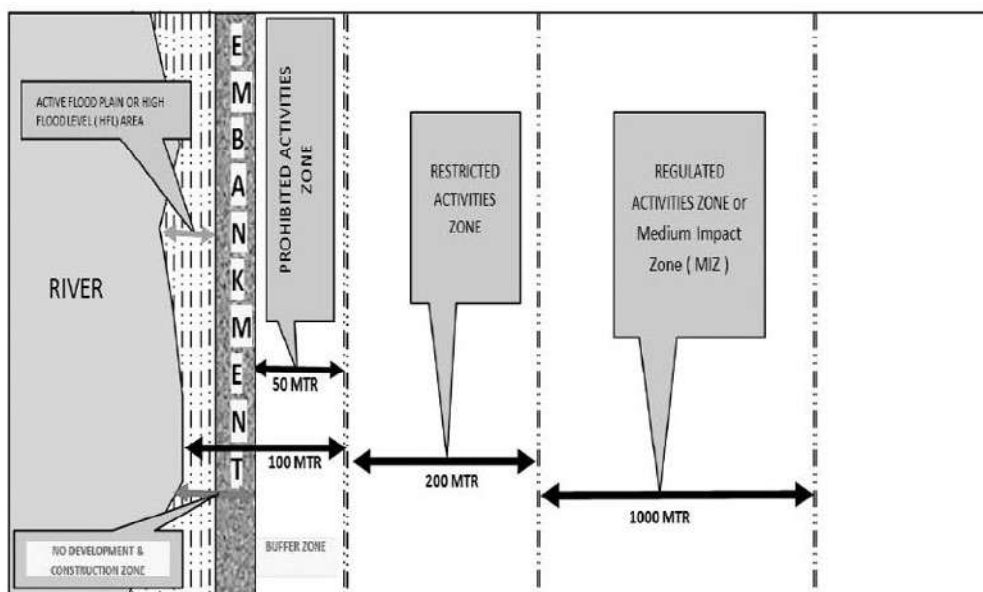


Figure : 21(River Zone of Buri Dihing river)



No Development & Construction Zone (NDCZ)	NDCZ will be covered Active Flood Plain or HFL along with embankment.
No Development & Construction Zone (NDCZ) & Prohibited Activities Zone	From outer limit of river bank the NDCZ and Prohibited Activities Zone will be 100 mtr. If know such embankment along the river bank.
Prohibited Activities Zone ( PAZ )	50 mtr buffer zone from existing embankment will be comes under Prohibited Activities Zone ( PAZ ) and the presence of ecologically sensitive and fragile watersheds, heritage sites, endangered species, national parks, biosphere reserves, wildlife sanctuaries etc. included under NDCZ and PAZ.
Restricted Activities Zone ( RAZ )	<ul style="list-style-type: none"> <li>➤ From outer limit of PAZ to 200 mtr.</li> <li>➤ Area comes under restricted development as per zoning regulation.</li> <li>➤ Construction of single story building, parks, playground etc. will be permitted after due approval from Water Resource &amp; Pollution Control Board.</li> </ul>
Regulated Activities Zone or Medium Impact Zone ( MIZ )	<ul style="list-style-type: none"> <li>➤ From outer limit of MIZ to 1000 mtr.</li> <li>➤ State Pollution Control Board ( SPCB ) are required to act as the competent Authority for the implementation of regulations for environmental conservation and preservation, including water bodies, forests and drains, parks, playgrounds, burial and crematoria.</li> <li>➤ Activities permitted :- traditional grazing, capture fishing, organic farming, discharge of treated domestic waster waters, withdrawal of ground water using hand pump, recreational activities etc.</li> <li>➤ Activities not permitted :- bundling , dumping of solid waste, construction of new embankment, land reclamation, storage of inflammable and toxic materials, and withdrawing water for commercial purpose other than hydro power and irrigation projects are prohibited.</li> </ul>

### 7.9.7 Approach to River Zone planning through Master / Zonal Development Plans

The following points to be considered by the competent authority while planning developments in River Zones:

- i. Proposed development should reduce pollution within the zone and regenerate a healthy environment.
- ii. Any kind of development is to be safe from flooding even at peak flow level.
- iii. The resource requirement be partially mobilized by compatible development of land in the zones without compromising on quality of the environment.
- iv. Identifying the stretches to be developed on priority for being prone to encroachments and do not require large financial resources.
- v. To mitigate the constraints of land for public and semi-public uses in the adjoin areas / zones.
- vi. Proposed river front development and rejuvenation of adjacent areas for recreation facilities.

**CHAPTER -8****8. LAND USE PLAN****8.1 Developable and Non – Developable Area of the Master Plan**

Urban growth and development is often conditioned by the natural landscape like hills, water bodies, forests and manmade impediments like railway line, major roads, river, canals etc. It is also conditioned by the resources and technology employed in overcoming the growth impediments and constraints.

Existing Margherita Master Plan covers an area of 17.94 sq.km. (1794.03 hectare). Except Buri Dihing river flowing through the middle of the town, there is no other physical features acting as a constraint for development. The soil is very fertile and good vegetation is observed in the region.

The quality of urban life and its functional efficiencies are governed by its land-use pattern. In order to understand and analyze systematically the functional relationship between various uses particularly the place of working, living and recreation, a detailed land use survey was conducted during 2010 and was analyzed up to 2011 to estimate the present and future need of the town. The present Margherita Municipality covers an area of 5.79 sq.km (579 hectare), while the Master Plan covers an area of 17.94 sq.km. (1794.03hectare).

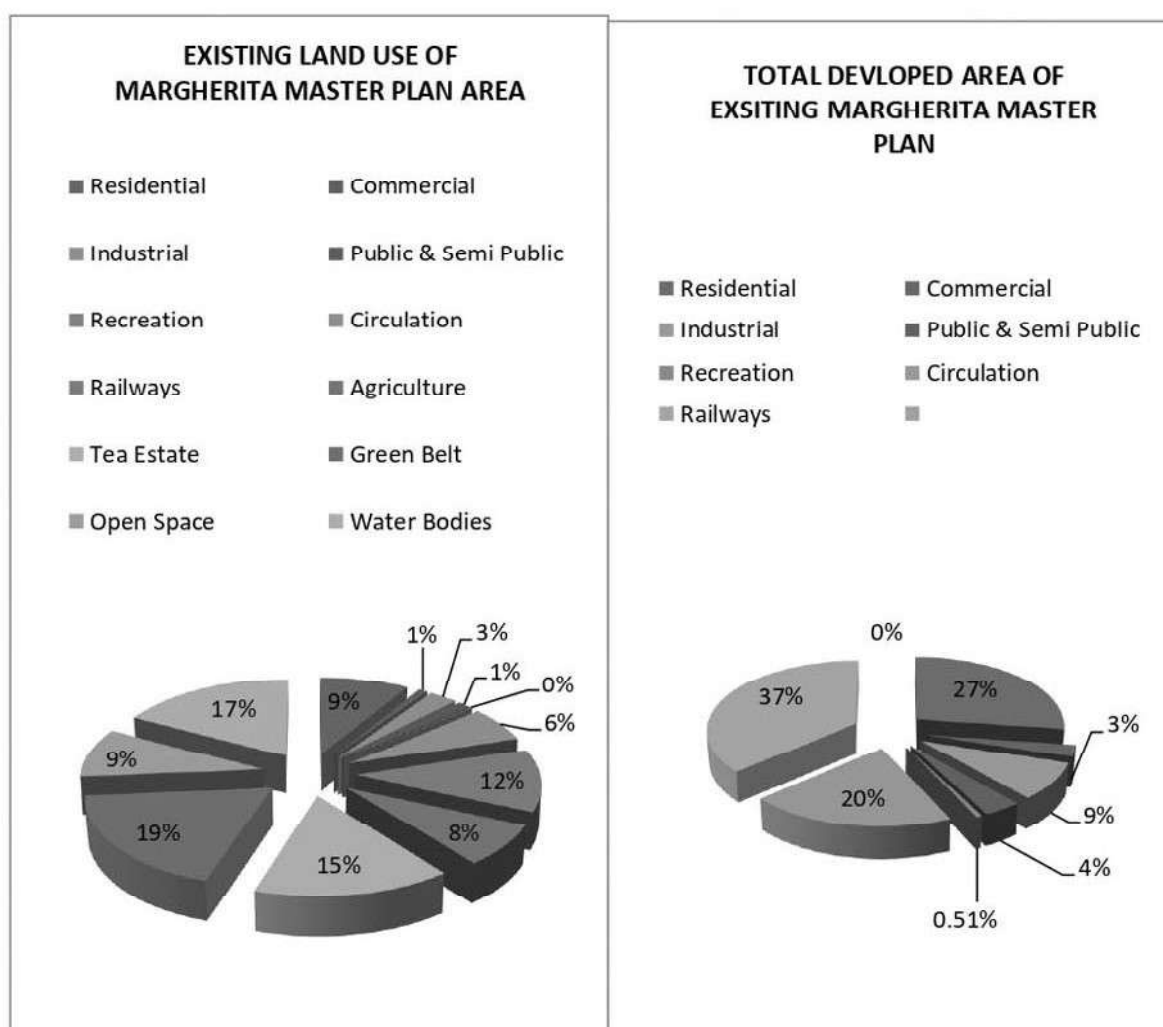
**8.2 Existing Land Use**

The existing various uses of land and the areas occupied by each use in Margherita Master Plan Area is shown in the following table:-

**TABLE NO: – 33****EXISTING LAND USE - MARGHARITA MASTER PLAN AREA IN 2010.**

Use	Margherita Master Plan Area in hectare	Percentage of the Margherita Master Plan Area (%)	Percentage of the total developed Area(%)
Residential	154.95	8.64	27.24
Commercial	15.73	0.88	2.76
Industrial	49.86	2.78	8.77
Public & Semi Public	21.53	1.20	3.79
Recreation	2.88	0.16	0.51
Circulation	115.43	6.43	20.29
Railways	208.38	11.62	36.64
<b>Total Dev. Area (A)</b>	<b>568.75</b>	<b>31.70</b>	<b>100.00</b>
Agriculture	335.17	18.68	--
Tea Estate	278.89	15.55	--
Green Belt	138.67	7.73	--
Open Space	165.63	9.23	--
Water Bodies	306.93	17.11	--
<b>Total Undev. Area (B)</b>	<b>1225.28</b>	<b>68.30</b>	
<b>TOTAL (A+B)</b>	<b>1794.03</b>	<b>100.00</b>	

Source: - Town& Country Planning, Dibrugarh Land Use Survey 2010.

**FIGURE:-22****EXISTING LAND USE & TOTAL DEVELOPED AREA**

Out of the total developed area of 568.75 hectare, about 154.95 hectares of land are used for residential purpose, which constitutes 27.24% of the total developed land. New residential areas have developed in the last few years at Makum Pathar, Lazum Gaon, Namdung Gulai & Borgulai.

Commercial and business uses occupy nearly 15.73 hectare or 2.76% of the total developed area. The central business area in Margherita is located at in a compact manner along either side of Digboi - Margherita road starting from the Circle Office. There are two main markets at Margherita: one is the Vinnermill market & the other is Margherita market. The roads being narrow, the parking spaces and open areas are inadequate to accommodate the increased business activities and vehicular traffics.

Industrial uses occupy an area of 49.86 hectare or 8.77% of developed area. The light industrial activity is scattered on the left side of Digboi - Margherita Road mainly at No. 1 Makum Pathar and at No. 1 Ahubari Gaon. Industrial activity has been also seen on both sides of Margherita

– Ledo road at Namdung Gaon & No.1 Borgolai. Another industry is existing at Makum T.E. application no.2

The land covered under Public and semi-public uses including educational institutions & Govt. Offices is about 21.53 hectare, which is 3.79% of the total developed area. After declaration of Margherita as a Sub-division in the year 1989, various Govt. Offices has been set up and accordingly number of educational institutions has also been increased.

In Margherita 2.88 hectare of land or 0.51% of the total developed area is used for recreational purposes. There are two main fields in Margherita for outdoor games besides a number of small fields & open spaces scattered all over the Master Plan Area.

Transportation and Circulation network of a town plays an important role and affects immensely the economic and socio-cultural life of the town. A well-developed road network can provide answer to many problems of urban life. In Margherita Master Plan Area, the land used for circulation purposes is 115.43 hectare, which constitutes 20.29% of the total developed area.

Railways occupy an area 208.38 hectare or 36.64% of the total developed area. The railway track is passing all along through the Master Plan Area from No.1 Makum Pathar to Borgolai Application towards Ledo.

In Margherita Master Plan Area Green belt covers an area of 138.67 hectare, i.e. 7.73% of the total Master Plan Area. Tea garden covers an area of 278.89 hectare, i.e. 15.54% of the total Master Plan Area. The land use for Agriculture is 335.17 hectare or 18.68% of the total Master Plan Area. Open spaces constitute an area of about 165.63 hectare or 9.23% of the total plan area. Water bodies constitute an area of 306.92 hectare, i.e. 17.11% of the total plan area. Solid Waste Disposal and the Graveyard & the Cremation Ground occupy an area of 3.67 and 2.53 hectare of land respectively.

### **8.3 Proposed Land use:**

Land use planning has a bearing on the expansion of the town and put pressure on rural areas. A change in urban economic function changes its population growth. The decision to set up administrative block, commercial activities and industrial estates as well as any Govt. policy to stimulate the urban economy accounts for population growth resulting in to opportunities for employment, increased income and business opportunities.

The proposed Margherita Master Plan covers an area of 1794.03 hectare or 17.94 sq.km., out of which about 754.54 hectare or 42.07% of the total plan area is proposed to be developed for urban use by 2041 for a projected population of 94194 persons.

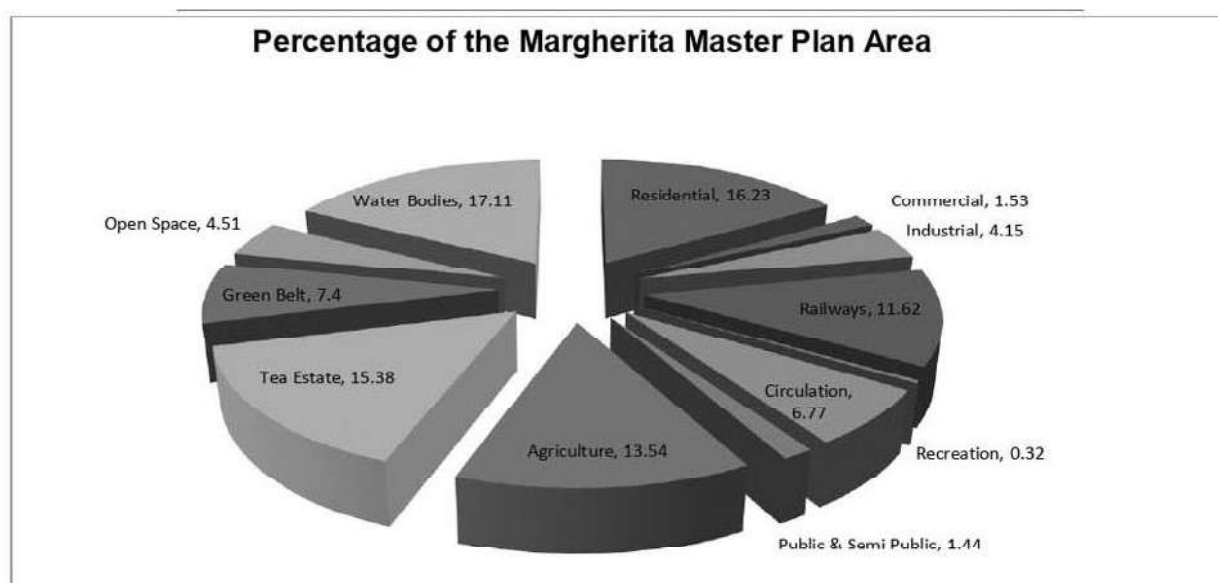
The following table shows the proposed distribution of land uses in Margherita Master Plan Area up to 2041.

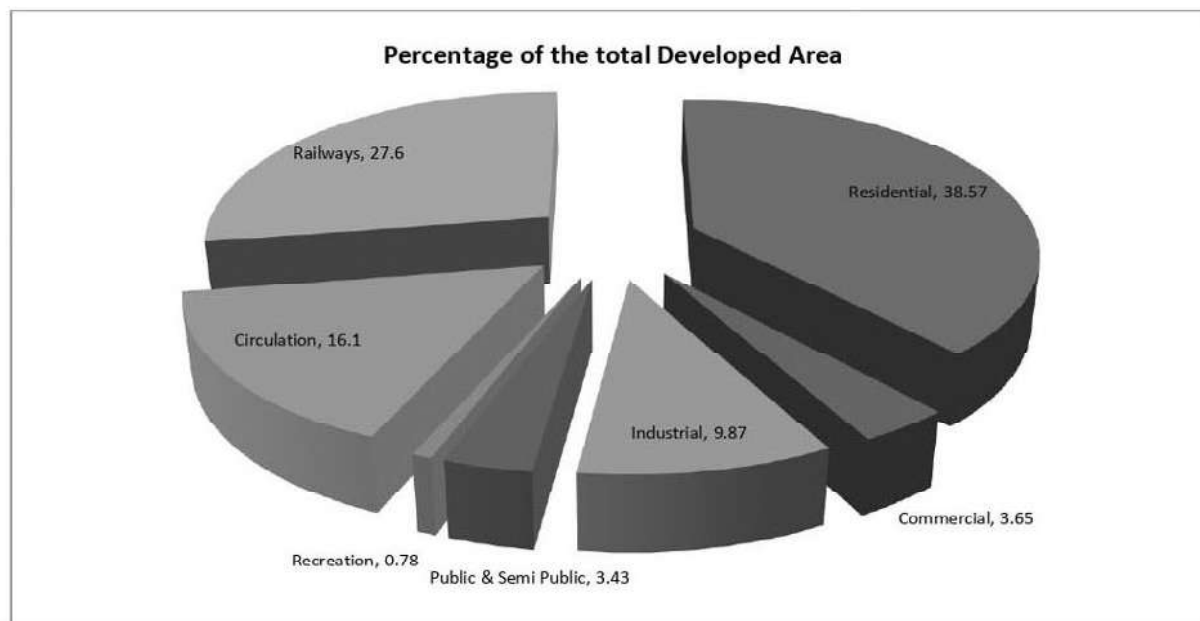
**TABLE NO:-34**  
**PROPOSED LAND USES - MARGHERITA MASTER PLAN AREA UP TO 2041.**

Use	Margherita Master Plan Area in hectare	Percentage of the Margherita Master Plan Area (%)	Percentage of the total developed Area(%)
Residential	291.16	16.23	38.57
Commercial	27.51	1.53	3.65
Industrial	74.50	4.15	9.87
Public & Semi Public	25.84	1.44	3.43
Recreation	5.84	0.32	0.78
Circulation	121.51	6.77	16.10
Railways	208.38	11.62	27.60
<b>Total Dev. Area (A)</b>	<b>754.74</b>	<b>42.07</b>	<b>100.00</b>
Agriculture	242.90	13.54	--
Tea Estate	275.92	15.38	--
Green Belt	132.60	7.40	--
Open Space	80.95	4.51	--
Water Bodies	306.92	17.11	--
<b>Total Undev. Area (B)</b>	<b>1039.29</b>	<b>52.93</b>	
<b>TOTAL (A+B)</b>	<b>1794.03</b>	<b>100.00</b>	

Note: Developed area is calculated by subtracting the area of agriculture, tea estate, green belt, open space & water bodies from the total Master Plan area.

**FIGURE :-23**  
**PROPOSED LAND USE & TOTAL DEVELOPED AREA IN MMP**





An area of about 291.16 hectare or 16.23% of the total Master Plan Area has been earmarked for residential use. It is presumed that a part of the total projected population will be residing in the mixed used areas. In the proposed land use plan, the gross residential density will increase to 347 persons per hectare. The following gross residential density is recommended in the plan:-

1. Low density : up to 80 persons per hectare.
2. Medium density : 80 – 150 persons per hectare.
3. High density : 150 – 250 persons per hectare.

About 27.51 hectare of land or 3.65% of the total developed area has been allocated for commercial use in the plan at various suitable places and out of which 8.86 hectare of land has been earmarked at No.1 Makum Pathar ( Alubari) for warehousing (4.49 Hec) and godowns (3.92 Hec) . The plan proposes secondary or local commercial centre's along both sides of NH 315 at ward No.4, Ward No.2 and Namdung Gulai area in order to decentralize the commercial activities from existing principal shopping centre. Neighborhood shopping centers with other community facilities is proposed in each neighborhood. Besides these, a few local daily markets are recommended in selected places according to the needs of the community& vendors and hawkers proposed in old fire station near central field.

The plan has allocated an area of 74.50 hectare or 9.87% of the total developed area for industrial activities. The plan has also earmarked an area of about 13.25 hectare at 3 No. Makum Pathar for industrial estate.

### **8.3 Composite Zones /Mixed Zones**

With increased urbanization, the demand for housing and market complex has increased manifold. The scheme proposes Residential Land Development Scheme to set a planned Residential neighborhood to accommodate 1000 persons or 200 households.

The development of this new residential area should be done on the basis of micro/block level planning where all urban problems covering drainage, solid waste management, and water supply etc. are addressed before the first resident moves in. The project is proposed in an area of 8.75 hectare at No.1 Makum Pathar.

The administrative activities at Margherita has increased manifold after declaration of Margherita as a sub-division in the year 1989. But the land used for administrative works is deficient. The existing land area under schools and hospitals is far behind the norms. This is very well reflected in the high utilization rate of 0.46 hectare per 1000 persons but the plan proposes to reduce the utilization rate to 0.65 hectare per 1000 persons by allowing mixed growth and Administrative Block along with Circuit House to be constructed in present SDC office/ Circle Office & Block Office.



**CHAPTER - 9****9 TOURISM**

Tourism is a social and economic phenomenon that heavily influences contemporary society (Crick, 1996). Nowadays, tourism industry can be considered as business behaviour since it might influence the development of a local economic. The secret for a successful destination is to approach the right target market and to provide an appropriate combination of local tourism products and services.

Tourism is now-a-days considered as an important industry which has vast scope for the generation of income and employment. It is one of the world's fastest growing industries, a major source of foreign exchange earner of a nation and a measure for resolving interstate and inter community conflict.

**9.1 Indian State's/UT's wise Tourists Inflow.**

Assam Stands 22<sup>nd</sup> in the Tourism sector when compared with other states and UT's. But in case of North Eastern States, Assam stands 1<sup>st</sup> in the Tourism Sector.

**Table 35**  
**North Eastern States Wise Domestic Visitor Arrival in Assam (2005 - 2016)**

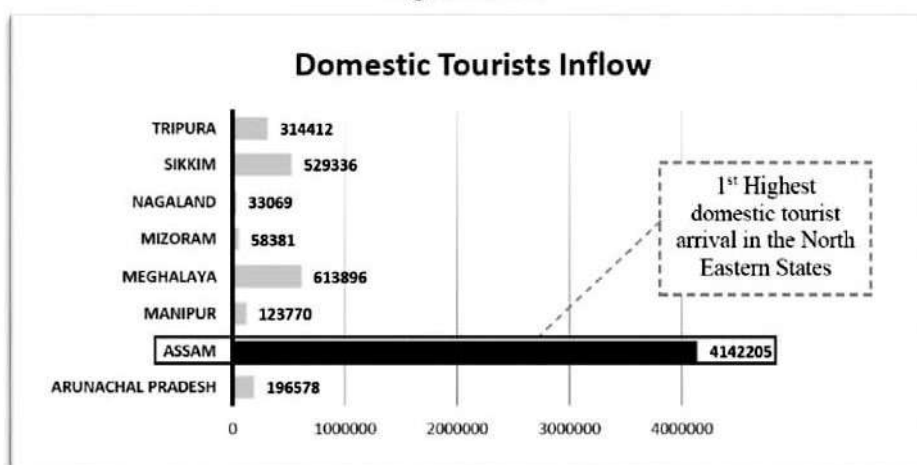
Sl. No.	State/UT	Domestic	Foreign
1	Uttar Pradesh	1161297774	3130437
2	Tamil Nadu	338635730	4703343
3	Andhra Pradesh	137377204	289809
4	Karnataka	124813271	549127
5	Madhya Pradesh	114233039	392280
6	Maharashtra	109959868	4539483
7	Telangana	94838573	146324
8	West Bengal	72326850	1509100
9	Gujarat	39270686	314363
10	Rajasthan	38341344	1494520
11	Jharkhand	33234408	168614
12	Punjab	32249844	451052
13	Uttarakhand	30001151	111494
14	Bihar	28272623	967134
15	Delhi	26859442	2449626
16	Himachal Pradesh	17561398	429439
17	Chhattisgarh	17431156	7807
18	Kerala	12819054	1007949
19	Odisha	12314442	71666
20	J & K	9279798	60888
21	Haryana	7389246	317205
22	Assam	5326222	18703
23	Goa	5203242	611082
24	Puducherry	1347741	111795
25	Chandigarh	1128173	30544
26	Daman & Diu	808556	5764
27	Meghalaya	791026	8252
28	Sikkim	726183	52246
29	Dadra & Nagar Haveli	558428	1844
30	Arunachal Pradesh	368971	6152
31	Tripura	366895	35833
32	Andaman & Nicobar Island	340618	15070
33	Manipur	148404	3162
34	Mizoram	66922	870
35	Nagaland	61397	3015

(Source: State/Union Territory Tourism Department, Ministry of Tourism)

## 9.2 Overview of Tourism in the North East

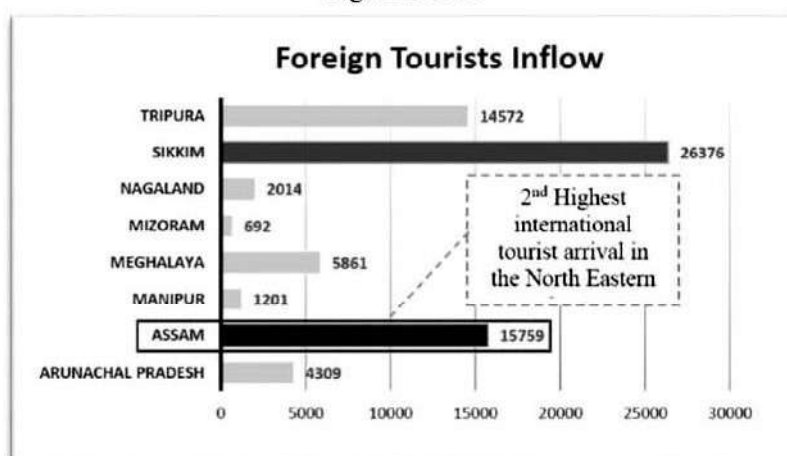
The location of the region is strategically important as it shares its border with Bangladesh, Bhutan, China, and Myanmar. The natural beauty of the place, rivers and mountains, Buddhist monasteries, serene natural environment, exotic flora and fauna, unique tribal culture, folk dance and music in the North Eastern region together offers an opportunity for development of tourism in the region.

Figure No. 24



*North Eastern States Wise Domestic Visitor Arrival in Assam (2005-2016)*

Figure No. 25



*(Source : State / Union Territory Tourism Department, Ministry of Tourism)*

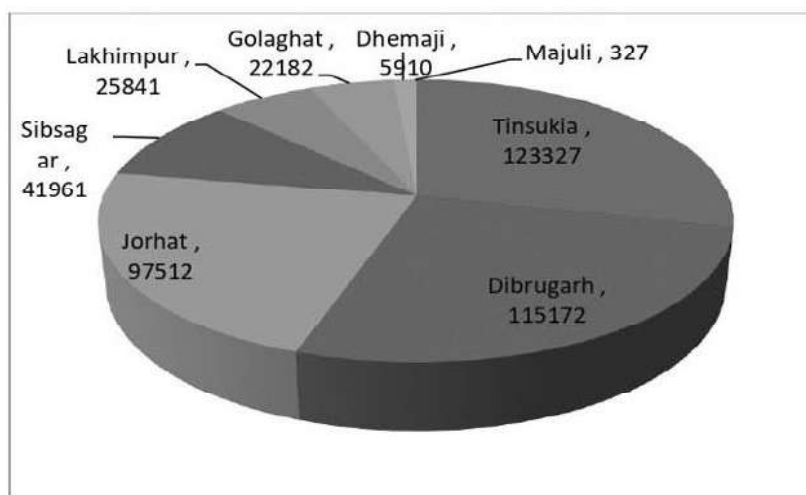
### 9.3 Upper Assam Districts wise Tourists Inflow

The tourist in-flow of the Assam state shows that maximum tourist arrivals are the Domestic tourists and it clearly depicts that there is a growth in the Tourism Sector from 2005 – 2018. There is a huge scope for Tourism Industry in the Assam state. In the Tourists Centres of Upper Assam, Tinsukia district has the highest Domestic Tourists Inflow, followed by Dibrugarh and Jorhat.

**Table 36**  
**District wise tourists' inflow of Upper-Assam**

	Name of the District	Domestic	Foreign	Total
1	Tinsukia	123327	323	123650
2	Dibrugarh	115172	408	115580
3	Jorhat	97512	431	97942
4	Sibsagar	41961	188	42149
5	Lakhimpur	25841	12	25853
6	Golaghat	22182	7	22189
7	Dhemaji	5910	0	5910
8	Majuli	327	0	327

**Fig. No. 26** District wise Tourist's Inflow of Upper-Assam



The town of Margherita is quite a colourful, vibrant but tiny location situated in the north-eastern corner of Assam adjacent to the border of Arunachal Pradesh. It is recognized as the coal town of India quite naturally due to abundance of collieries much developed by the British and has a potentiality of Coal tourism in the town. The town is also known as Coal Queen as it is famous for coal business. With so many tea gardens and tea estates located in Margherita, the town serves as an ideal place of tea tourism. It has a beautiful golf course at the foot of the hills and a small stream running through.

Not only is the place being full of lush green plantations, but the town also offers its visitors with a variety of experiences including adventure activities. There is tremendous potential in Margherita as far as the tourism industry is concerned. Many sites located around the Margherita town and spread over wide areas outside the town serve as the hot bed for a variety of tourism activities, and henceforth requires immediate attention and careful handling of the concerned authorities so as to allow the tourism prospects to grow, develop and flourish.

As per Survey in Tourism statistics in Assam, total number of visitors in Tinsukia is 123327 (approx.), out of which 323 are foreign visitors. The tourists majorly visit Tinsukia district due to the scenic beauty and rich cultural heritage; predominantly, tea estates, coal and oil situated in Margherita and Digboi.

#### 9.4 Tourism Destinations within Margherita and its suburbs.

##### 9.4.1 Eco & River Tourism



**Dehing Patkai National Park** is located in the Dibrugarh and Tinsukia districts of Assam and covers an area of 231.65 km<sup>2</sup> rainforest. From Margherita the distance is 8.9 km along Margherita - Deomali road. It was declared a wildlife sanctuary in the year 2004. In the year 2020 Government of Assam upgraded it into a national park. It is located in the Dehing patkai landscape which is a dipterocarp-dominated lowland rainforest. The Dehing Patkai forms the largest stretch of lowland rainforests in India. The Dehing Patkai Wildlife Sanctuary was declared as Dehing-Patkai Elephant Reserve under Project Elephant.

Buri Dihing river can be used for river tourism and river front development play vital role on other hand

##### 9.4.3 Ethnic /Cultural Tourism



The Singphos are an important tribe inhabiting the North East residing in the Tinsukia district of Assam. The Singphos are mostly an agrarian community and have a culturally rich community with Shapawng Yawng Manau Poi being the major festival celebrated by the Singphos. During this festival the Singpho youths in their traditional wardrobe display colourful dance and the community displays a wide variety of traditional cuisines and liquor.

The Singpho Eco Lodge is located at the Inthong village near Margherita. It takes around 30 minutes to reach the Singpho Eco Lodge from Margherita town. The village itself where the Singpho Eco Lodge is located is a beautiful countryside surrounded by green paddy fields and lush green tea gardens.

### 9.4.3 Spiritual Tourism

Religious tourism, spiritual tourism, sacred tourism, or faith tourism, is a type of tourism with two main subtypes: pilgrimage, meaning travel for religious or spiritual purposes, and the viewing of religious monuments and artefacts, a branch of sightseeing.

By analogy, spiritual tourism refers to tourism undertaken for spiritual purposes; this can be a form of religious tourism, but can also go beyond the realm of religion. Religious sightseeing can be motivated by any of several kinds of interest, such as religion, art, architecture, history, and personal ancestry. People can find holy places interesting and moving, whether they personally are religious or not.

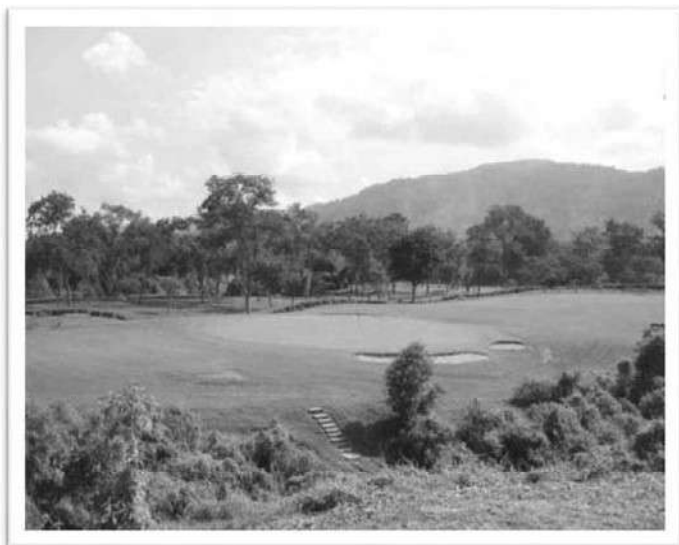


*Satsang Bihar*



*Margherita Buddhist Temple*

#### 9.4.4 Sports Tourism



The Margherita Planters Club Golf Course is situated at Namdang Tea Estate of Mcleod Russel India Limited under the Williamson Magor Group of Enterprises and is about 2 Kms from Margherita Town. The course is supposed to be the best in Assam with respect to its topography, undulating fairways, the surrounding scenery and the hills on the north.

*Margherita Golf Club*

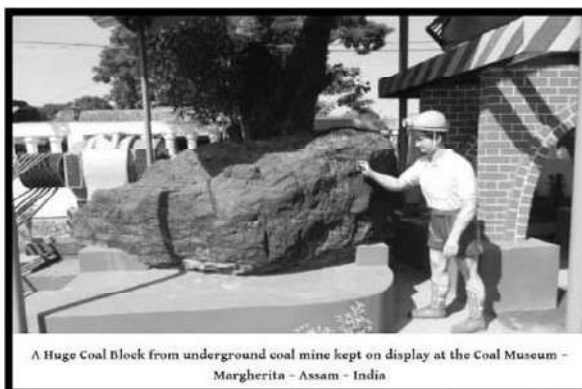
#### 9.4.5 Educational Tourism

##### Margherita Coal Heritage Park & Museum



Coal mining is an important source of livelihood for the people in the state and the largest coal producing company in the world 'Coal India Ltd.' has its operations in the state of Assam under its subsidiary North-Eastern Coal Fields Ltd. (NECF). Situated very close to the office of the General Manager of Coal India Ltd. at Margherita in Assam is India's only Coal Museum.





The coal museum contains relics of the likes of the locomotives manufactured by W G Bagnall, Stafford, England, memoirs of World War II, the history of the Assam Railways & Trading Co. Ltd., a rare collection of stamps from all over the world, vintage Cyclostyle machines, etc. The main attraction of the museum is the practice of coal mining depicted in the form of real time models, a demo structure of an underground coal mine, etc. The museum depicts the history of coal mining at Namdang in Margherita, Assam. This museum is must to see place for people in the coal mining industry and history enthusiasts.

#### 9.4.6 Tea Tourism



Bisa Gam, the Singpho king introduced tea to Englishman Robert Bruce in 1823. After this incident, Robert and Charles Bruce discovered 'Tea' in Assam and since then tea has become an integral part of Assam's economy. It is the largest single industrial sector in the state. The importance of Tea industry can be realised from the fact that Assam alone produces more than 50% of the country's total area production.







*Namdang Tea Estate*

Established in 1884, the Namdang Tea Company was a part of the Assam Railways & Trading Company. The estate has 2 divisions, the Namdang and Namtok, lying in the south of the Dehind river and north of the Patkai range of hills. The scenic beauty is quite startling as Namdang is surrounded by green hills from three sides.



*Margherita Tea Estate*

The estate was established in 1884 in the Makum Tea Company which was a part of the Assam Railway and Trading Company. It derives its name from the nearby township named by an Italian engineer. Margherita was the reigning queen of Italy at that time. The estate is situated at the upper end of the Assam Valley, with the Arunachal in the South and the Margherita township in the north. The area is

#### **9.4.7 Tourism Issues**

Margherita town and its suburbs has immense potential and scope for the tourism industry. Margherita is best known for her unique natural beauty with flora and fauna, tea gardens, golf courts in the tea gardens, coal mines, museum and its colourful cultural festivals. The various places of visit can be nature related, religious, historical etc. Some of the problems of tourism in Margherita includes:

1. **Poor Road Connection:** The roads are in poor shape in many of the tourist spots. Some of the roads cannot be used during the rainy season. The pucca roads too are crying for attention.
2. **Absence of Tourist Facilities:** A tourist expects some basic facilities like well-maintained toilets and eateries.
3. **Poor Maintenance:** The tourist spots are neglected to say the least. Most of the infrastructure are in bad shape and needs urgent renovation. Caretakers are non-existent which affects the maintenance.
4. **Lack of information:** There is lack of information for the tourists regarding the tourist spots, their significance, and location. Guide facilities are also not there.

#### 9.4.8 Tourism Potential & Capacity Building

- Selected villages should be given assistance for showcasing of handlooms and handicrafts to help the villagers sell their products.
- If necessary, we can have these exhibition centres for a group of villages also. These will help to sustain the crafts as these activities will help generate income for the villagers.
- Local youths can be trained to become tourist guides. They already have adequate knowledge about the places; they just need to be trained to enhance their soft skills so that they are in a better position to interact with the tourists.
- To develop a proper website, that enables to give enough information to domestic and foreign tourists.

#### 9.4.9 Draft Proposal for Cultural hub cum park

- One cultural hub come park could be developed where the art of the different community people can be placed, and the place should be designed in such a way that it should be environmentally friendly.
- One side of the hub can be used to exhibit their traditional ornaments, dresses and food so that tourist can also enjoy their culture and tradition.
- The other side can be used for recreational which includes landscape and sculptures.
- The facilities like parking, drinking water and toilets should be provided inside the park.



*Land scaping*



*Art works*



*Sculptures*



*Traditional wear exhibit*

#### **9.4.10 Policies for Tourism Development**

As a service industry, tourism has numerous tangible and intangible elements. Major tangible elements include transportation, accommodation, and other components of a hospitality industry. Major intangible elements relate to the purpose or motivation for becoming a tourist, such as rest, relaxation, the opportunity to meet new people and experience other cultures, or simply to do something different or have an adventure.

Tourism is vital for every place, due to the income generated by the consumption of goods and services by tourists, the taxes levied on businesses in the tourism industry, and the opportunity for employment and economic advancement by working in the industry. For these reasons government and private agencies sometimes promote a specific region as a tourist destination and support the development of a tourism industry in that area. The contemporary phenomenon of mass tourism may sometimes result in overdevelopment; however alternative forms of tourism such as ecotourism seek to avoid such outcomes by pursuing tourism in a sustainable way.

Margherita region offer great potential for tourism development. According to the existing scenario analysis, it has been observed that the following categories of tourism have immense potentialities for this region:

- Nature based outdoor recreation and Eco-tourism for Tea estates, coal mines, botanical garden, forest, riverfront and vast agricultural area/ village settlements with undulating landforms including picnic spots, sightseeing, camping sites etc. Presence of all these tourism products calls for the growth of Adventure Tourism.
- Religious Tourism with historically important structures such as temples and other outdoor worshipping areas in the vicinity.
- Heritage Tourism with old architectural building, and annual/seasonal traditional village fairs and festivals, folk or tribal socio-cultural events with arts, crafts, music, dance etc.

**CHAPTER-10****10. PROPOSED PROJECT, BRIEF AND TENTATIVE FUNDING SOURCE****10.1 Identify Priority Sectors and Project**

The plan proposals for Margherita Master Plan Area spread up to 2041. It is quite obvious that the natural development will continue and the private developers will play an important role in this respect. As such, the private development is encouraged in conformity with the Master Plan. It is strongly recommended to stop unplanned and sporadic developments but to encourage balance planned and sustainable development where the provision for necessary physical infrastructure and socio-economic amenities are economically made possible. There are some immediate necessities as pointed out by the various stake holders, which are to be taken up as priority schemes for the Master Plan Area which is listed below:

1. Beautification of town with road signage, street light, development of eco-park etc.
2. Protection and preservation of all natural channels flowing in the master plan area.
3. Improvement of existing Margherita market and Venermill market into a well planned, people friendly business hub.
4. Construction of a Old Age home , Tourist lodge, Naturopathy Center, Affordable Housing at Ward No-8 Old Colony
5. Construction of Multi-Utility building with parking at Ground Floor at Ward No.7 present auto stand site,
6. Construction of Fish market cum commercial building with Slaughter house at Ward No. 6
7. Improvement of existing traffic signal points and setting up new ones.
8. Setting up of Organic farming at ward no 2 & ward no 8.
9. Improvement of existing A.S.T.C. Bus station.
10. Construction of Vendor and Hawker market at old fire station Ward no. 6.
11. Industrial estate at 3 No Makumpathar Gaon
12. Construction of cold storage, ware house at Makum Pathar ( Alubari).
13. Development and improvement of existing playground.
14. Solid waste Management & Faecal Sledge Treatment Plant
15. Indoor Stadium & Town Hall at Namdang T.E ( New Colony) opposite St. Mary's School
16. Administrative Block & Circuit House at Ward no. 1
17. Library at Sahityachora
18. Railway Fly over :- a) at Jayanagar Junction / NH 315-215  
b) at NH 315-215 Railway crossing near Borah Automobiles
19. Road Side Planation near eco park upto Buri-Dihing bridge and along the NH-315 in Gulai area.
20. Riverside Development on the bank of river Buri-Dihing.
21. Improvement and development of existing Crematory & Burial ground
22. Improvement of basic infrastructure in Slums
23. Walking track & Cycle track

Necessary schemes for development of land and to provide necessary incentive to attract industrial enterprises in the areas earmarked for industries at No.1 Alubari area and Borgulai area.

In the first phase, the schemes like widening and improvement of roads, construction of new roads, scheme for slum area up-gradation and relocation, provision for required spaces for parks, playgrounds and parking places and improvement of commercial and market areas including existing market, daily bazaar etc. can be taken up. The Municipality has to play an important role visioning with other Govt. agencies in formulation and execution of such schemes in the Master Plan Area. All the above schemes need to be carried out to make the plan area in to healthy place of living.

In addition to the above, the plan also recommends for the establishment of Health centre, construction of fly-over, construction of Administrative block housing all Govt. offices under one roof.

## 10.2 Fund Requirement for each Sector/ Project

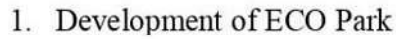
Fund requirement for each sector project will be finalized by the ULB& concerned line department after preparation of detailed project report as per Govt. instruction. In this plan, tentative cost of proposals is given as below :

### Tentative project cost of proposals for Margherita master plan

Sl . No.	Name of the proposal	Tentative project cost (In lakhs)	Duration
1	Beautification of town with road signage, street light, development of eco-park etc		Short term
	(a) Road signage	Rs. 100.00	
	(b) Street light	Rs. 200.00	
	(c) Eco park	Rs. 200.00	
2	Protection and preservation of all natural channels flowing in the master plan area	Rs. 5,000.00	Mid term
3	Improvement of existing Margherita market and Venermill market into a well planned, people friendly business hub	Rs. 1,000.00	
4	Construction of a Old Age home , Tourist lodge, Naturopathy Center, Affordable Housing		Mid term
	(a) Old Age home	Rs. 200.00	
	(b) Tourist Lodge	Rs. 500.00	
	(c) Naturopathy centre	Rs. 300.00	
	(d) Affordable Housing	Rs. 150.00	
5	Construction of Multi-Utility building with parking at Ground Floor	Rs. 2,000.00	Short term
6	Construction of Fish market cum commercial building with Slaughter house	Rs. 200.00	

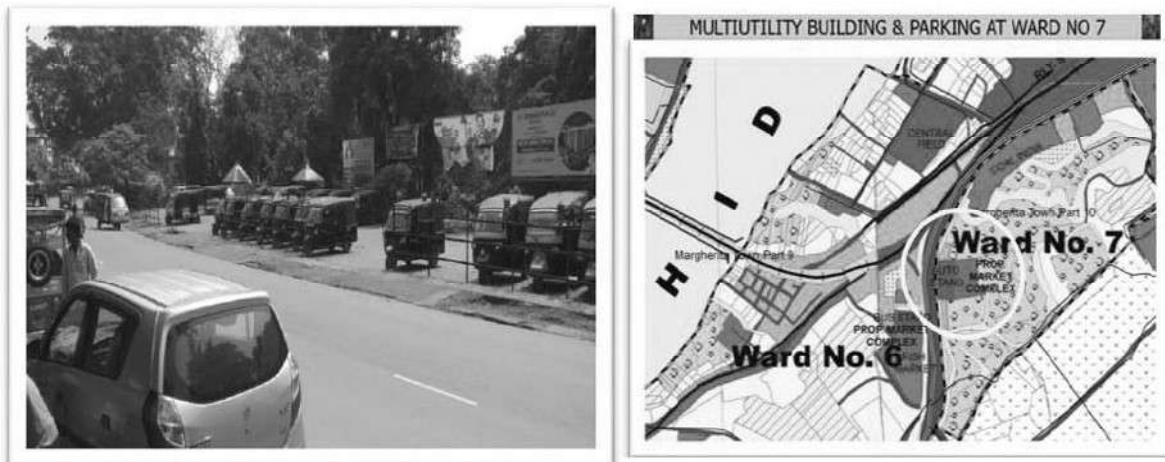
7	Improvement of existing traffic signal points and setting up new ones.	Rs. 200.00	Short term
8	Setting up of 2 Nos. Organic farming	Rs. 200.00	Mid term
9	Improvement of existing ASTC bus station	Rs. 100.00	Short term
10	Construction of vendor and hawker's market	Rs. 150.00	
11	Industrial Estate		
	(a) Boundary wall	Rs. 300.00	Mid term
	(b) Shed	Rs. 1,000.00	
12	Construction of cold storage and ware house		
	(a) cold storage	Rs. 500.00	Mid term
	(b) Ware house	Rs. 500.00	
13	Development and improvement of existing playground	Rs. 5,000.00	
14	Solid Waste Management & Faecal Sludge Treatment Plant	Rs. 10,000.00	Short term
15	Construction of Indoor stadium and Town Hall home		
	(a) Indoor Stadium	Rs. 200.00	Mid term
	(b) Town Hall	Rs. 1500.00	
16	Administrative block and Circuit house		
	(a) Administrative block	Rs. 3,000.00	Short term
	(b) Circuit house	Rs. 500.00	
17	Library	Rs. 500.00	Short term
18	Flyover (2 Nos.)		
	(a) at Jayanagar Junction / NH 315-215	Rs. 5,000.00	Long term
	(b) at NH 315-215 Railway crossing near Borah Automobiles	Rs. 5,000.00	
19	Roadside plantation near Eco park up to Buri-Dihing bridge and along the NH-315 in Gulai area	Rs. 10.00	Mid term
20	Riverside development (both side) on the bank of river Buri-Dihing	Rs. 6,000.00	
21	Improvement and development of existing Crematory & Burial ground.	Rs. 200.00	Short term
22	Improvement of basic infrastructure in Slums.	Rs. 40.00	
23	Walking track & Cycle track	Rs. 30.00	
	Total	Rs. 49,680.00	



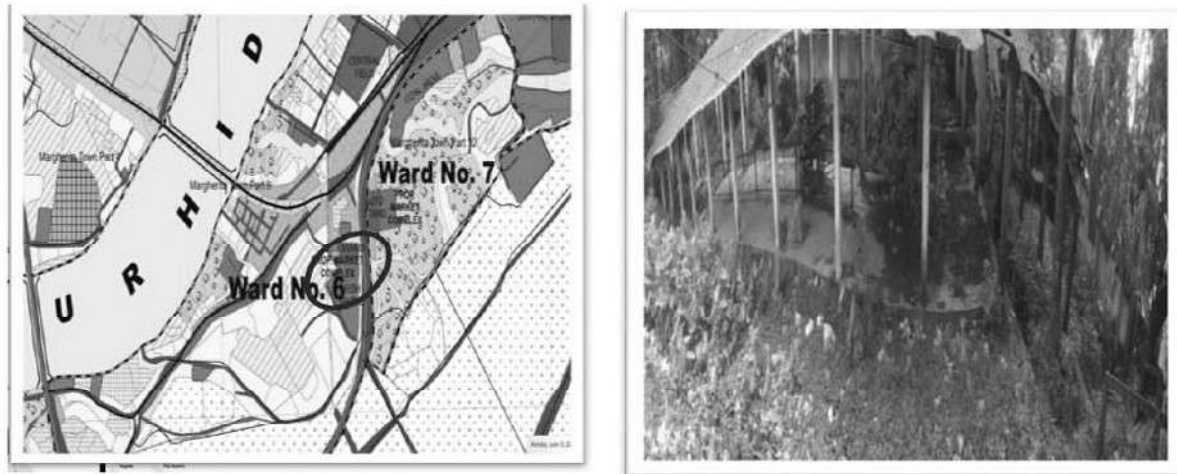




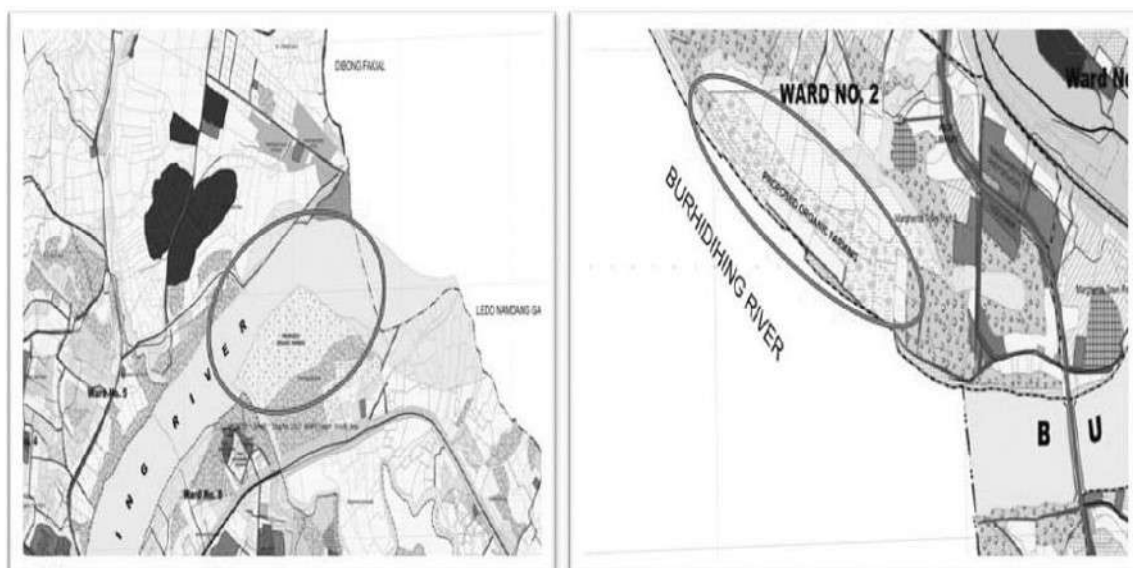
3. Construction of Multi-Utility building with parking at Ground Floor at Ward No.7 present auto stand site,



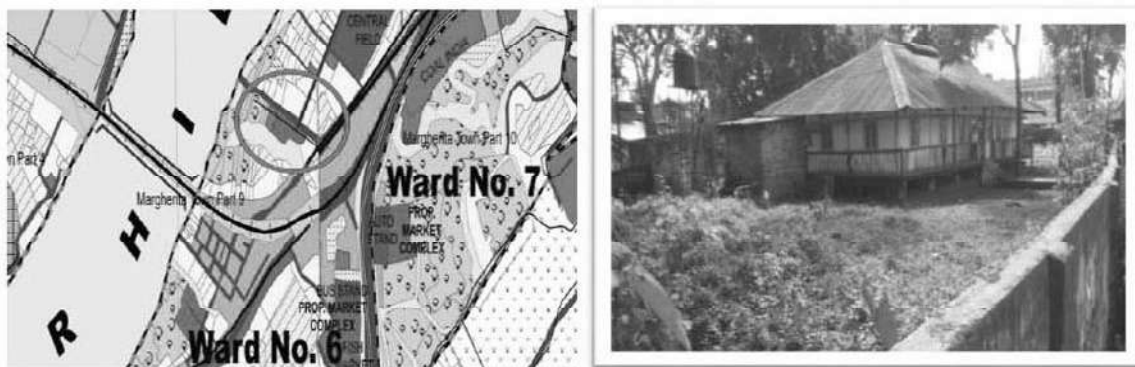
4. Construction of Fish market cum commercial building with Slaughter house at Ward No. 6



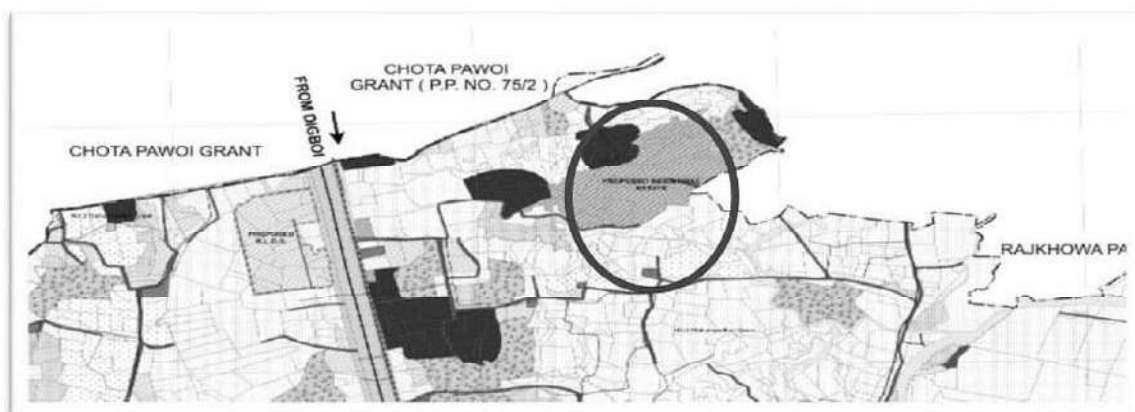
5. Setting up of Organic farming at ward no 2 & ward No. 8



6. Construction of Vendor and Hawker market at old fire station Ward No. 6.



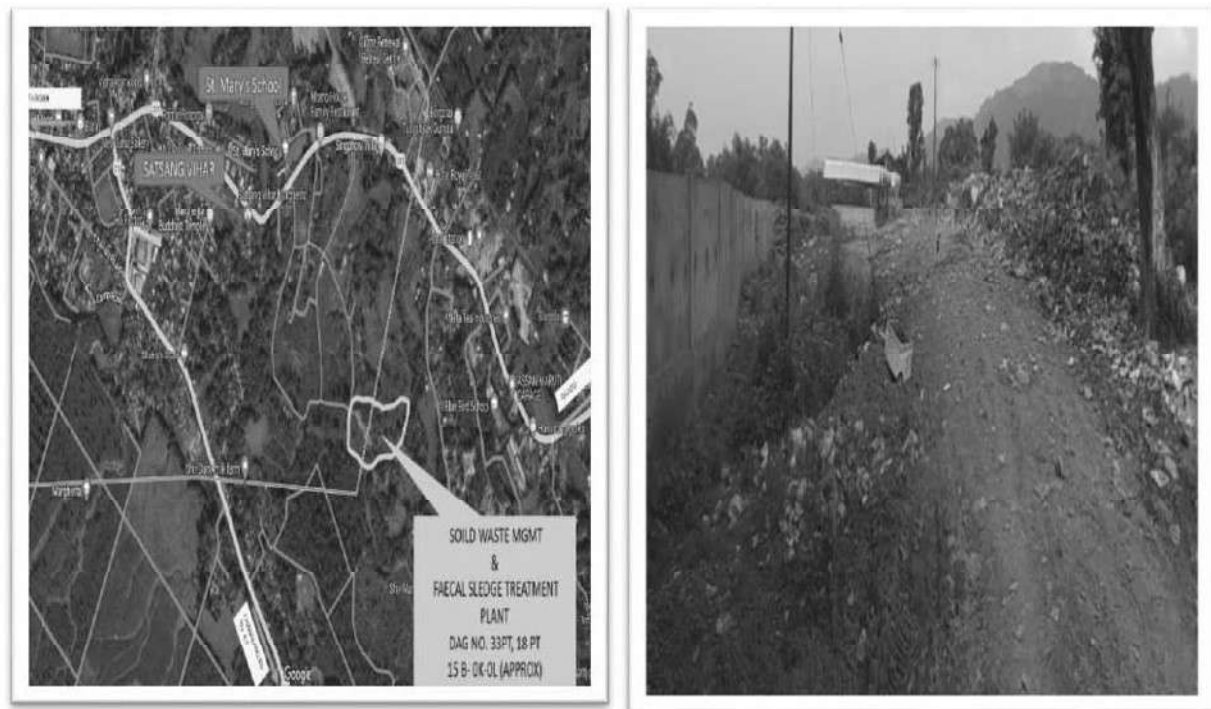
7. Industrial estate at 3 No Makumpathar Gaon



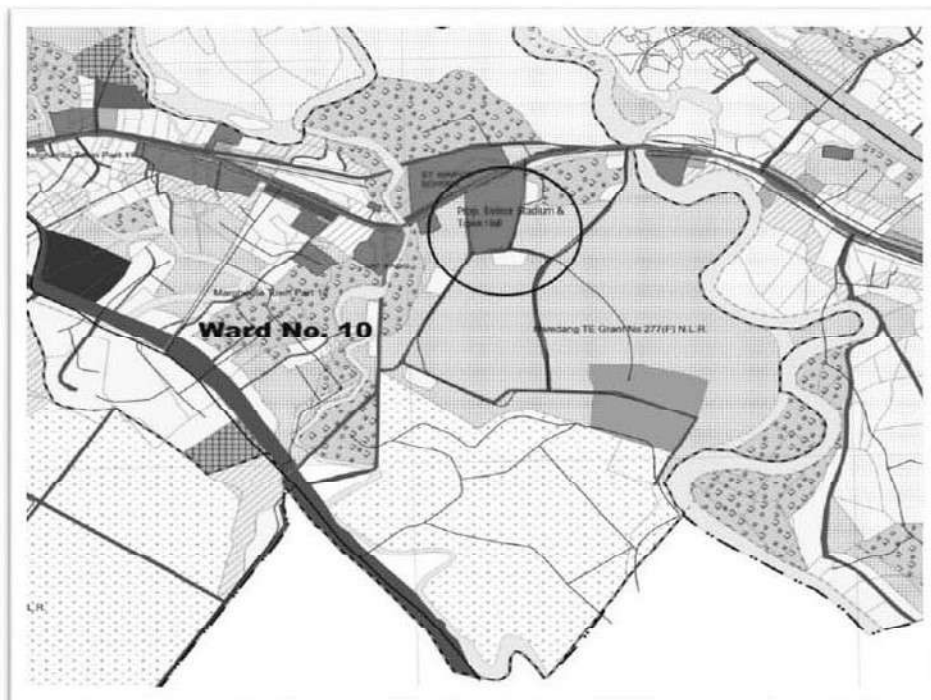
8. Construction of cold storage, ware house at Makum Pathar ( Ahubari)



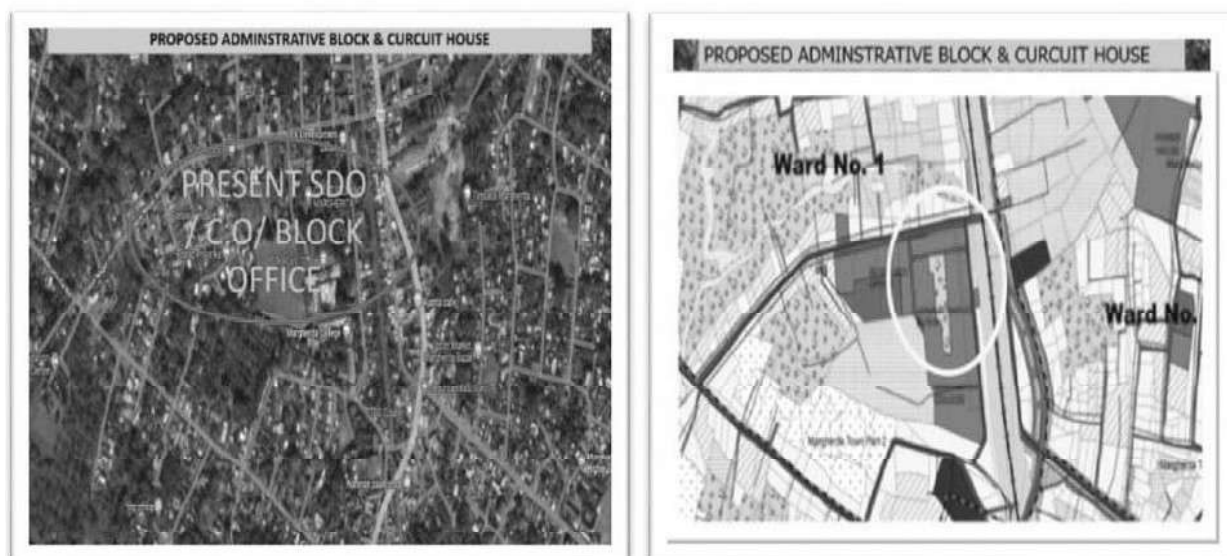
## 9. Solid waste Management &amp; Faecal Sludge Treatment Plant



## 10. Indoor Stadium &amp; Town Hall opposite St. Mary's School



## 11. Administrative Block &amp; Circuit House at Ward No. 1



## 12. Railway Fly over :-

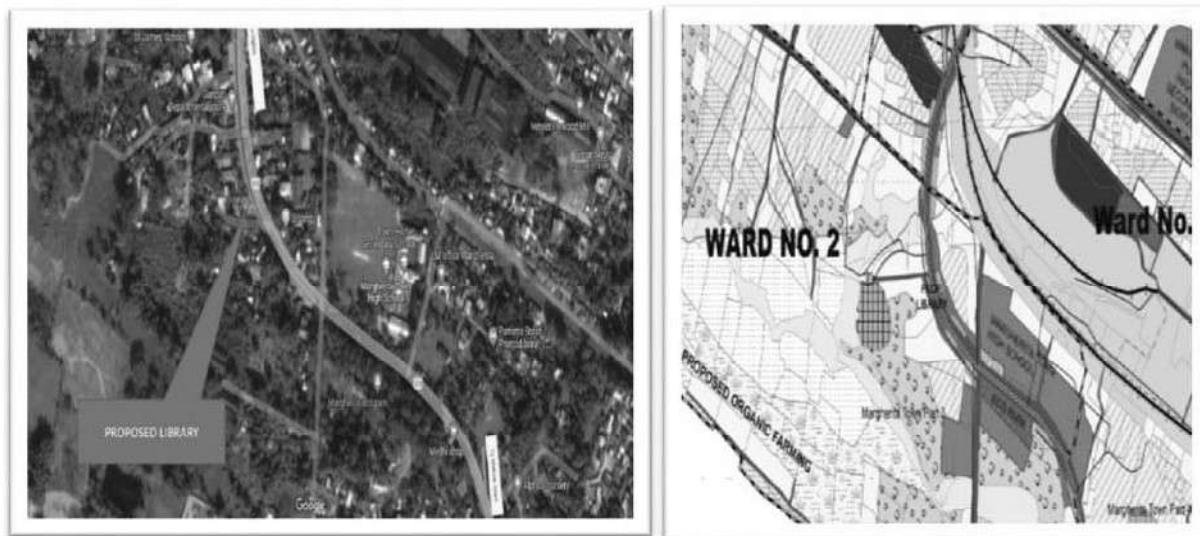
a) at Jayanagar Junction / NH 315-215



b) at NH 315-215 Railway crossing near Borah Automobiles



13) Library at Sahityachora



#### 10.4 Indicative Sources of Fund

The ULB& concerned line departments will submit the DPR's to their respective departments for sanctioning fund from State & Central Government under various schemes like NLCPR, NEC, 10% pool fund etc. The ULB's can also adopt the policy of Private Public Partnership (PPP) mode for raising the fund for a few remunerative projects.



## **CHAPTER- 11**

### **11. DISASTER PLAN**

#### **11.1 Hazards Specific Proneness in Margherita:**

➤ **Earthquake :-**

As per the latest seismic zoning map of India, the Margherita District falls under High Risk Zone-V, where a maximum intensity of IX can be expected.

➤ **Flood :-**

Even Margherita town is also facing urban flooding in many localities due to lack of proper drainage system.

➤ **Soil Erosion :-**

The soil erosion is major threat to many areas due to the high undercurrent of river Buri Dihing

➤ **Fires :-**

The fire takes places in Margherita due to short circuit in commercial areas, thatched house. Mainly fire takes place from March to April when the climate remains very dry. The district also prone to industrial disaster due to the presence of coal fields in an around Margherita.

➤ **Cyclone:-**

In Margherita cases related to low density cyclone occurred in some places.

#### **11.2 Need for Disaster Management**

Data on disaster occurrence, its effect upon people and its cost to countries, are primary inputs to analyze the temporal and geographical trends in disaster impact. Disaster losses, provide the basis for identifying where, and to what extent, the potentially negative outcomes embedded in the concept of risk is realized. They help to understand where, and to whom, disaster risk becomes impact. They also provide the basis for risk assessment processes, a departing point for the application of disaster reduction measures.

Development cannot be sustainable unless disaster mitigation is built into development process. Investments in mitigation are more cost effective than expenditure on relief and rehabilitation. Prevention and mitigation contribute to lasting improvement in safety and are essential to the integrated disaster management system. Disaster response alone is not sufficient as it yields only temporary results at a very high cost. So, emphasis must be on Disaster prevention, mitigation and preparedness, which help in achieving objectivity of vulnerability reduction.

As per Section 40 of Disaster Management Act, 2005 that every department of the State Government shall prepare a Disaster Management Plan.

#### **11.3 Importance of Putting Disaster Management Plans in Place**

Disasters are events that have a huge impact on humans and/or the environment. Disasters require Government intervention. They are not always unpredictable. Floods take place in valleys and flood plains, droughts in areas with unstable and low rainfall, and oil spills happen in shipping

lanes. This predictability provides opportunities to plan for, prevent and to lessen the impact of disasters.

Disasters arise from both natural and human causes, and the responses needed could stretch community and government capacity to the limit. Disasters are inevitable although we do not always know when and where they will happen. But their worst effects can be partially or completely prevented by preparation, early warning, and swift, decisive responses.

Disaster management aims to reduce the occurrence of disasters and to reduce the impact of those that cannot be prevented. The Government White paper and Act on Disaster Management define the roles of Local Authorities as well as Provincial and National government in disaster management.

North East Region has been vulnerable to many natural and manmade disasters in the past. We can notice that most of the disasters have occurred within the last two decades, and the frequency, intensity and magnitude of the disasters are ever increasing.

#### **11.4 Plan Objectives**

The objectives of the Disaster Management Plan are:

- Disaster management in the routine affairs of the office
- To provide technical and humanitarian assistance during disaster
- Prompt and effective discharge of office responsibilities during disaster situations
- Ensuring safety of office infrastructure, human resource and other assets
- Ensuring safety of the beneficiaries and others
- Speedy restoration after disaster impact
- To conduct trainings and capacity building for effective prevention, mitigation and response for disasters.
- To undertake information, education and communication activities to create awareness among the communities and the general public.

#### **11.5 Likely Geographical Extent and Magnitude / Severity**

- 1) The Master Plan area is situated on a flat land with slight slopes towards south upto the river Buri Dihing coming from Digboi side and after crossing the river the slopes towards north-west. The river Buri Dihing flowing towards the town, which divides Margherita Master Plan Area in to two parts. Hence, Margherita district is severely prone to flood. Moreover, some parts of Margherita town is located in very low lying area with poor drainage system for unplanned development, so there are every chances of flash flood due to heavy rainfall. Such flash floods have been experienced during last five years.
- 2) Assam as a whole is within the Zone V of earthquake zone. Especially Margherita has witnessed a devastating earthquake in 1950. So, it can be said that geographically and geologically Margherita is situated in a very hazards prone zone.
- 3) Chances of Landslide are comparatively less in this district but might happen in open mining or people resides in the bank of Buridihing. But fire can broke out in the congested residential



and commercial areas, market of the town anytime during lean season, even then there is every possibility to have big fire or leakage of hazardous gases in coal mines. So is the risk of epidemic in the slum/basti areas. The district has faced cyclones several times in the past. Road accident, rail accident, collapse of multi-storied buildings etc. can occur at any time. Of course riot is not so common in this district.

### 11.6 Disaster Management Cycle

In multi-hazard response plan, the disaster management cycle has a significant role to play. The four stages of disaster cycle have their own importance in terms of their implementation during, after and before the occurrence of any disaster.

#### Pre disaster activities

1. Policy development and National, State, district, local level disaster organization formation
2. Vulnerability and capacity assessment.
3. Prevention and mitigation
4. Preparedness, planning and training

#### Pre disaster activities

1. Policy development and National, State, district, local level disaster organization formation
2. Vulnerability and capacity assessment.
3. Prevention and mitigation
4. Preparedness, planning and training



#### During Emergency activities

1. Warning (beginning before the actual event)
2. Evacuation, search and rescue
3. Emergency assistance (relief) – food, water, shelter, medical aid

#### Post disaster activities

1. Repair and restoration of life lines (power, telecommunications, water transportation)
2. Reconstruction and rehabilitation.

### 11.7 Formation of Margherita Disaster Management Cell (MDMC)

So, the Master Plan recommends for formation of a Margherita Disaster Management Cell (MDMC) in the office of Margherita Municipality, as per Section 40 of Disaster Management Act, 2005.

The MDMC has to be constituted with the following functionaries are Chairperson (Chairman), Vice Chairman (Co-Chairperson), Chief Executive office (Executive Office), Members (SDOI, Health, Roads, Building, Industries (Coal) and other relevant department), Nodal Officer (Jr. Engineer).

The MDMC will give emphasis towards the preparation of Margherita Disaster Management Plan. The plan also recommends that the MDMC cell to co-ordinate during emergency with the District Disaster Management Authority (DDMA) located at the Head-Quarter of the District. The MDMC Cell will provide all the available resources and manpower for Disaster Management. This Cell will mobilize the service of technical personnel for the damage survey work to help the District Administration.

The MDMC must meet at least once in six months i.e. in the month of March and September before the Disaster Season (Flood & Cyclone) of Margherita town under the chairmanship of the Chairman, Margherita Municipal Board & to update the plan. For this one month's prior notice should be given to all concerned departments before convening the meeting. Chairman should review the work of MDMC. An emergency meeting will hold whenever information is received regarding calamity.

#### **11.8 Standard Operation Procedure (SOP)**

The Master Plan recommends the MDMC for formulation of Standard Operation Procedure (SOP) for automatic response of the members during disaster.

- Written guideline that precisely defines how operations are to be carried out.
- An organizational directive that establishes a standard course of action.
- Written guidelines that explain what is expected and required of the personnel.
- Standardization of activities :-
  - Identify planned and agreed upon roles & actions.
  - Promotes coordination and communication amongst personnel.
  - Simplify decision making during potentially stressful conditions.

Proper implementation of Assam Notified Urban Area Building Rules – 2014 (ANUABR) & Sensitization among stakeholders engaged for construction work / owners to use disaster resistant technologies

#### **11.9 Rainwater Harvesting**

Margherita Zone has experienced heavy rainfall during summer season due to the south-western monsoon that leads to artificial floods not only in the plan area. So, the plan recommends adoption of rainwater harvesting system in construction activities that will reduce the volume of artificial floods in the Master Plan Area and also help to maintain the ground water level.

**11.10 Do's & Don'ts during****a) EARTHQUAKE****b) FIRE**

TABLE No 37

**Actionable points for various line departments**

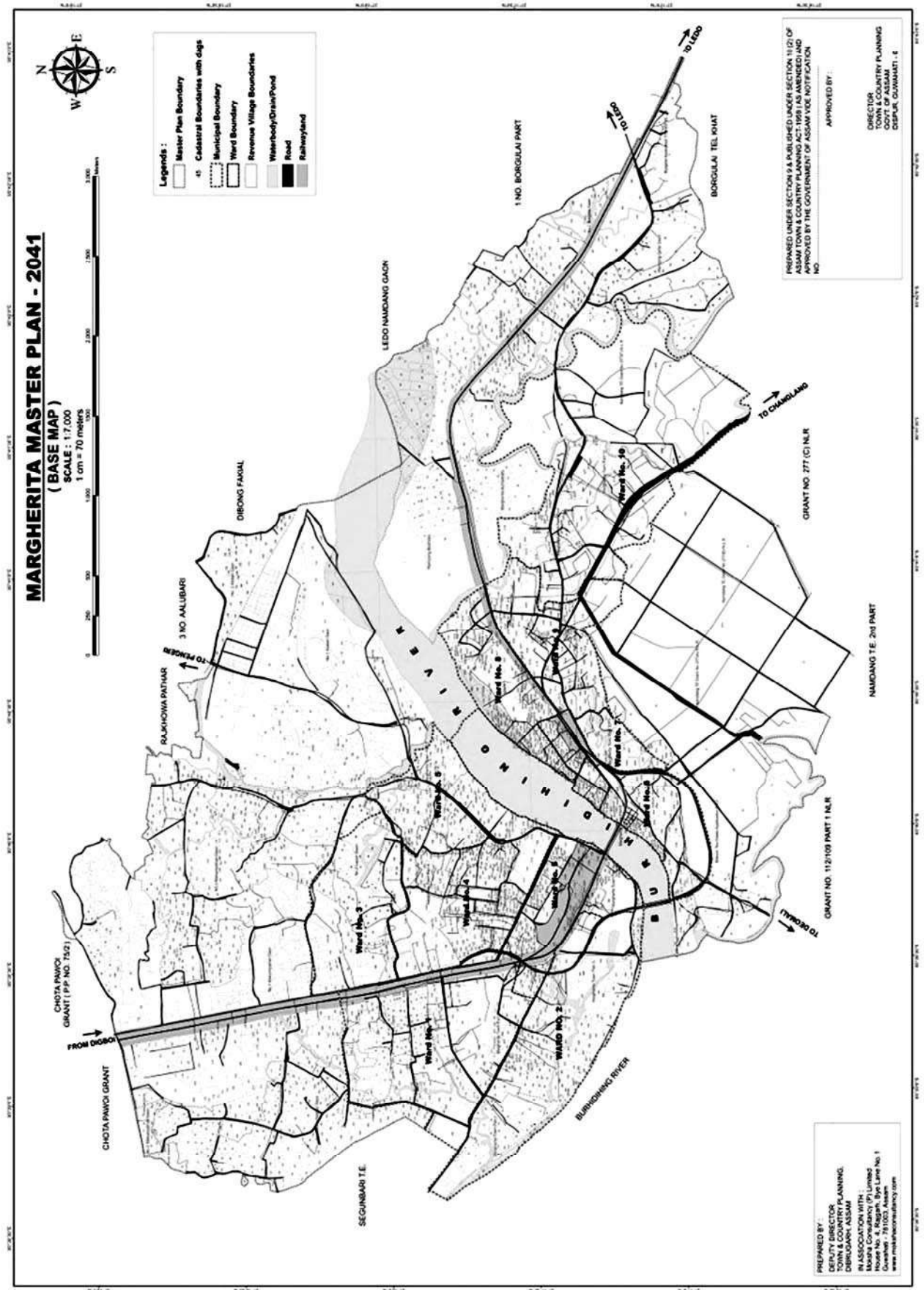
SL No.	Name of line Department/Agency/	Proposal	Action to be under taken towards implementing proposal
1	Margherita Municipal Board	a) Slum Area Development & Affordable Housing Scheme b) Solid Waste Management c) Construction of vendor & Hawker Market d) Construction of Tourist Lodge e) Bus Stand & Parking f) Improvement of existing fish market	Line department shall prepare concept paper / DPR whichever is applicable as per directive of the government for consideration of funding under 10% pool fund, NLCPR, NEC, State Finance Commission, CSR Fund & Pvt. Sector etc. in a phased manner but during the Master Plan period i.e. up to 2041. A few selected schemes like housing colony can be consider under PPP mode.
2	Public Works Department & Margherita Municipal Board	a) Footpath, cycle Track & walking track b) Road signage in roads and in accident prone area c) Road Signage & Street Furniture d) Railway fly over e) Multiutility building/ Parking / Commercial building	
3	ASEB & Margherita Municipal Board	Improvement of street lighting & Electric Sub Station, Bus Terminal	
4	Public Administration and Margherita Municipal Board	Construction of Administrative Block, Circuit House & Library, parking, development of existing cremation and burial ground	
5	Public Works Department	Widening of Road, improvement of junctions	
6	Margherita Municipal Board and Town & Country Planning Assam	Development of Drainage system	

7	Margherita Municipal Board and Public Health Engg. Department	Improvement of sanitation	
8	PHE Department & Assam Urban Water Supply and Sewerage Board	Water Supply Scheme	
9	Education Department, NGO and Private Agency	Education Facilities & Plantation drive in each education institutions	
10	Health Department, NGO and Private Agency	Health Care Facilities, Naturopathy Centre	
11	Sports & Youth Welfare Department & Sports Association	Development of playground and construction of indoor stadium,	
12	Social Forestry, Margherita Municipal Board, Public Administration and NGO	Protection & Conservation of environmentally friendly zone	
13	Social Forestry Department	Roadside Plantation & Urban afforestation	
14	Agriculture	Urban Agriculture & Organic farming, Cold Storage, Warehouse	
15	Water Resource Department & Pollution Control Board	River front development & River Centric Planning	
16	Transport & Railway Department	Transit Zone	
17	Tourism Department and NGO	Development of tourist spot, Tourist Lodge, river tourism etc.	
18	DICC	Industrial estate	
19	Water Resource Deptt	River front development	

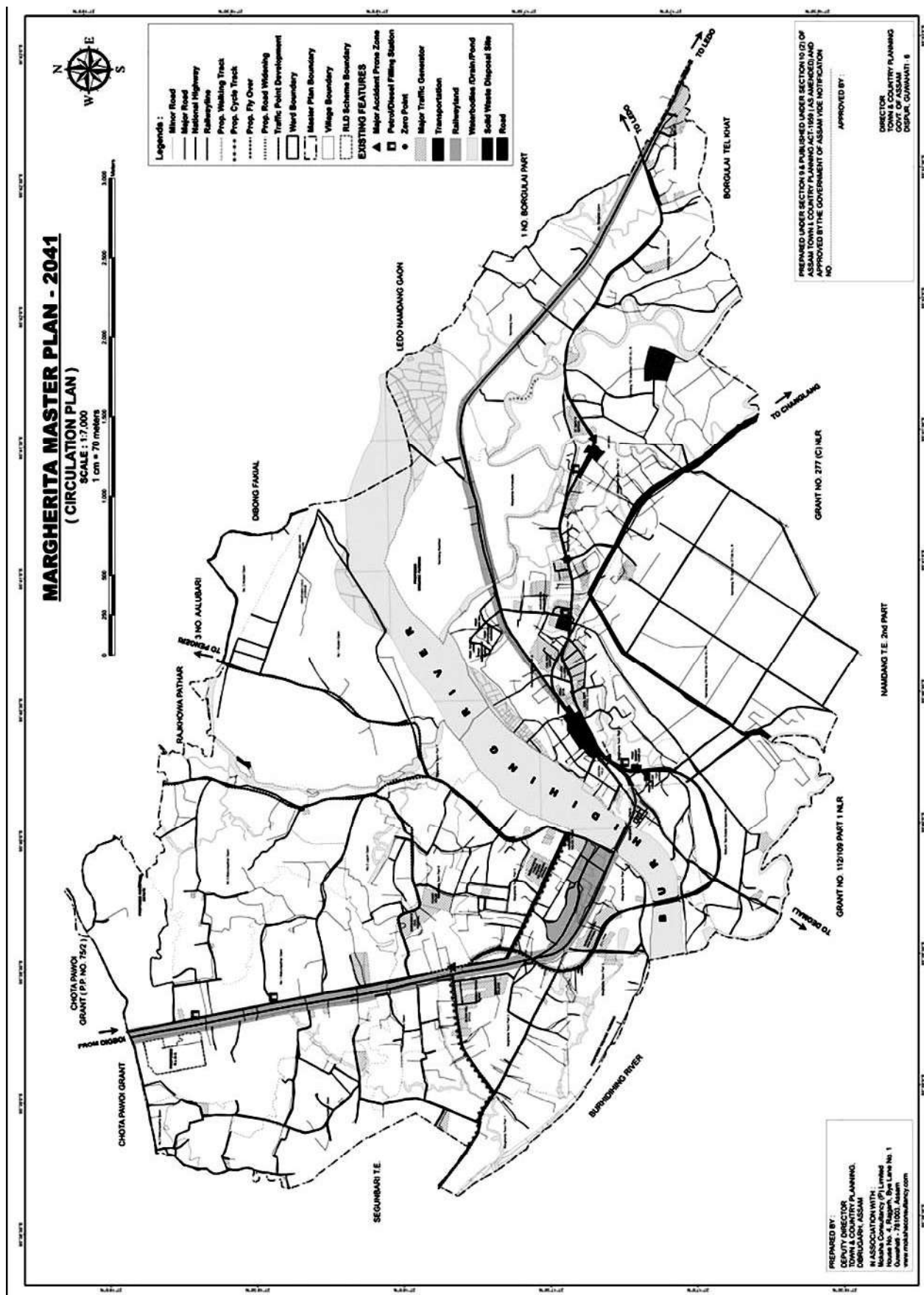
TABLE NO 38 :- FIXATIOIN OF RAOD LEVEL UNDER MARGHERITA MASTER PLAN

Ward No.	Principal Road	Main Road	Proposed Road level
1	NH-38	1. 4 No. Makum Pather Road	136.80
		2. Faltu Basti Road	136.80
		4. B.K Chetia Path	140.50
		5. Jaya Nagar	140.10
		7. College Road	140.90
		8. Mirikamajuli Road	136.80
		9. Road via Segunabri Tea Factory to Mirikamajuli link road	136.80
2	NH-38	1. Mirikamajuli Road	136.80
		6. Segunbari Kalibari Road	136.80
		7. Ferry Ghat road to Koiribari	136.80
		9. Hillview Masjid Patty Road	136.80
		10. Road near Irrigation Office	136.80
		11. Road in front of ECO Park	136.80
3	NH-38	1. Pioneermill Road	136.80
		2. Tirupati Mill Road	136.80
		3. Civil Hospital Road	140.50
		4. Road near Civil Hospital to Binu Chetia Samadhi	136.80
4	1. NH-38	1. Civil Hospital Road	140.50
	2. Alubari Road	2. Lazum Kalibari Road	136.80
		2. Road in front of Shyam Talkies	136.80
		3. Ram Krishna Vidyapith Road	136.80
		4. Radha Madhav Mandir Road	136.80
		5. Natun Line Road	136.80
		6. ATT Mill Road	136.80
5	1. NH-38	1. Alubari Post Office Road	136.80
	2. Alubari Road	2. Lazum Kalibari Road	136.80
		3. AR&T Colony Road	136.80
		4. Masjid Patty	136.80
		5. Irrigation office road	136.80
6	NH-38	1. Balukhad Road	136.80
		2. Makum Bagan Tiniali to Balukhad link Road	136.80
		2. Nepali Shiv Mandir Road	136.80
		3. Margherita Bazar Upper Market Road	136.80
7	NH-38	1. Paul Para Road	137.60
		2. Station Para Road	138.00
		3. Post office Road	137.00
		4. Central field Road	136.80
8	Nil	1. Dehing Poria Road	136.80
		2. Paul Para Road	136.80
		3. Old Colony Road	136.80
9	NH-38	1. CIL Hospital Road	139.40
		2. Natajee Para Road	136.80
		3. Babul Cinema Hall Road	136.80
		4. Bahabari Road	136.80
		8. Brishnujyoti Nagor Road	136.80
		9. Treasury office Road	136.80
		10. Margherita Kalibari Road	136.80
		10. APO Colony Road	136.80
10	1. NH-38	1. Nizarapara Road	136.80
		2. Mission Para Road	136.80
		3. Indira Colony Road	136.80
		6. Budho Bihar Road	136.80
		7. New Colony Road	136.80
		9. Guard line Road	136.80

Source: Margherita Municipality Office &amp; T&amp;CP, DBRG



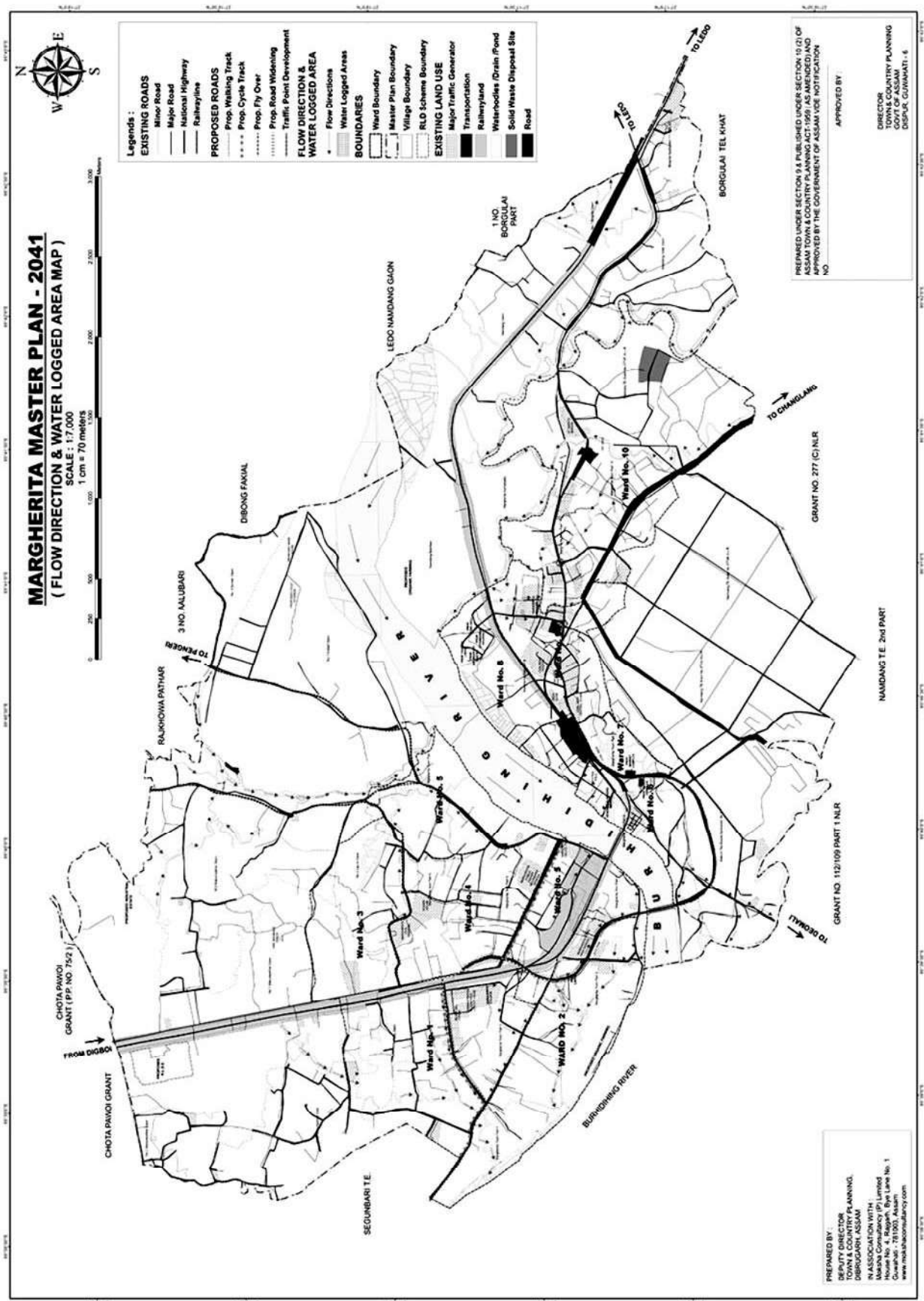




### **CONTOUR AND ROAD LEVEL FIXATION MAP OF MARGHERITA MASTER PLAN**

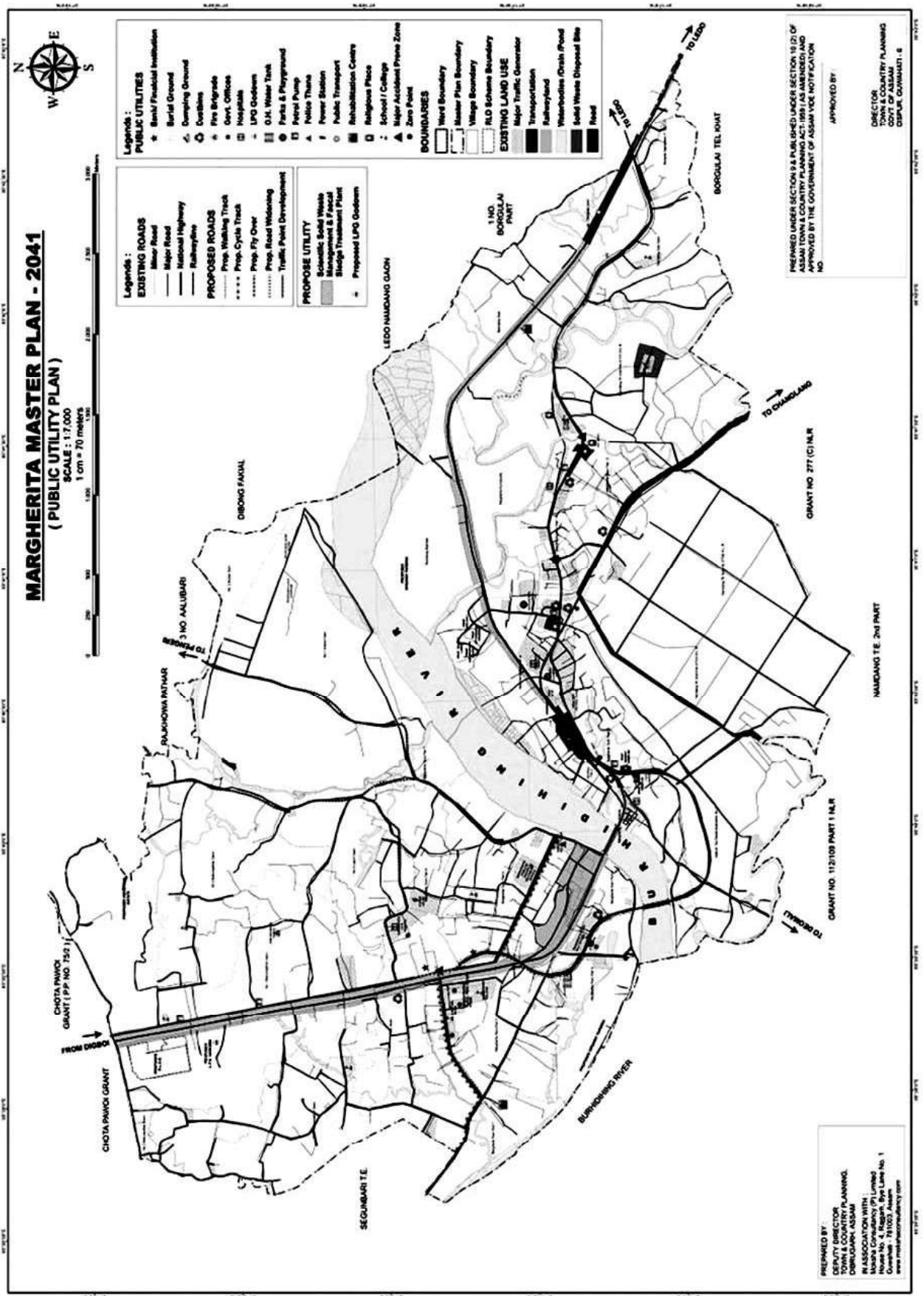
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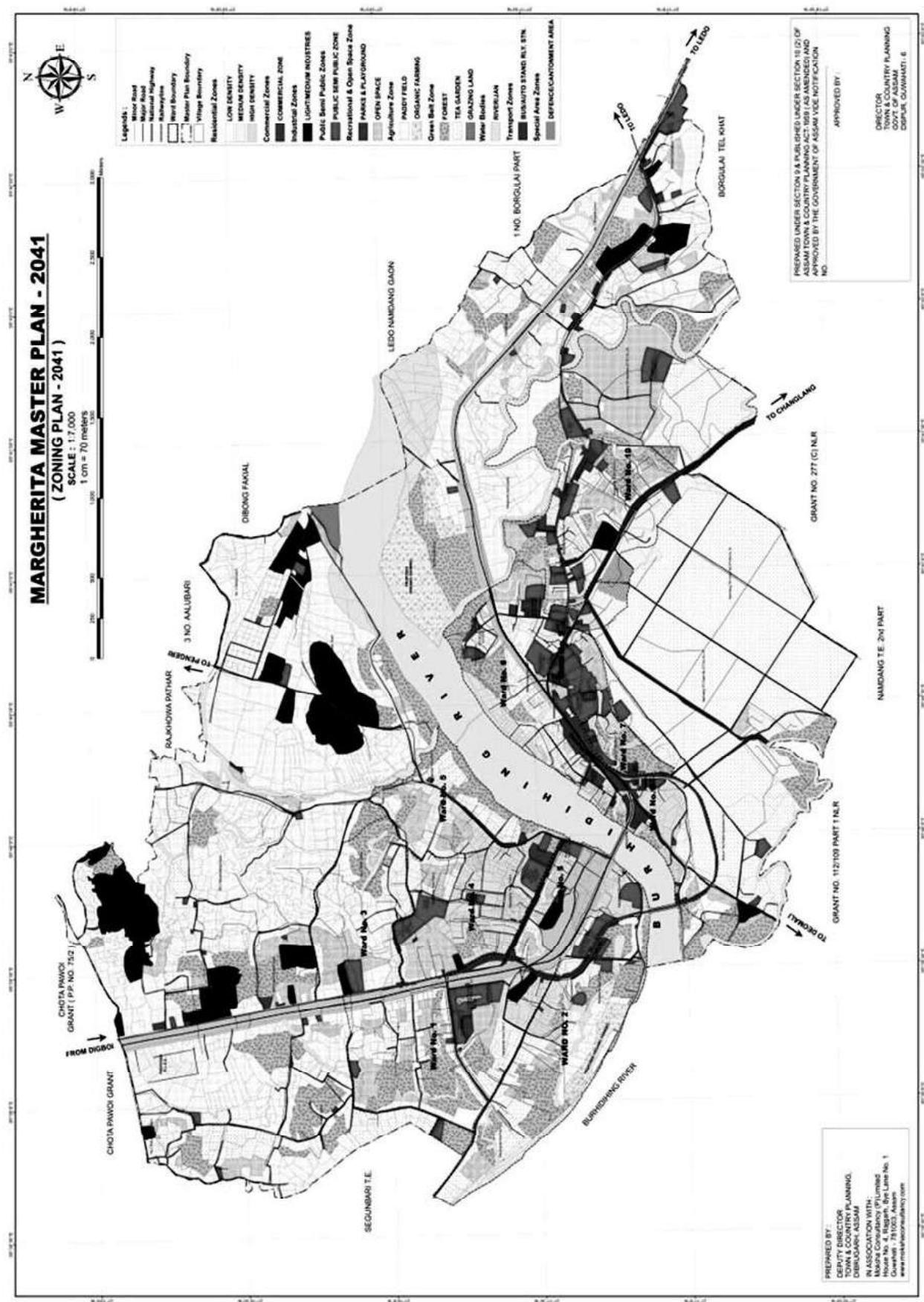




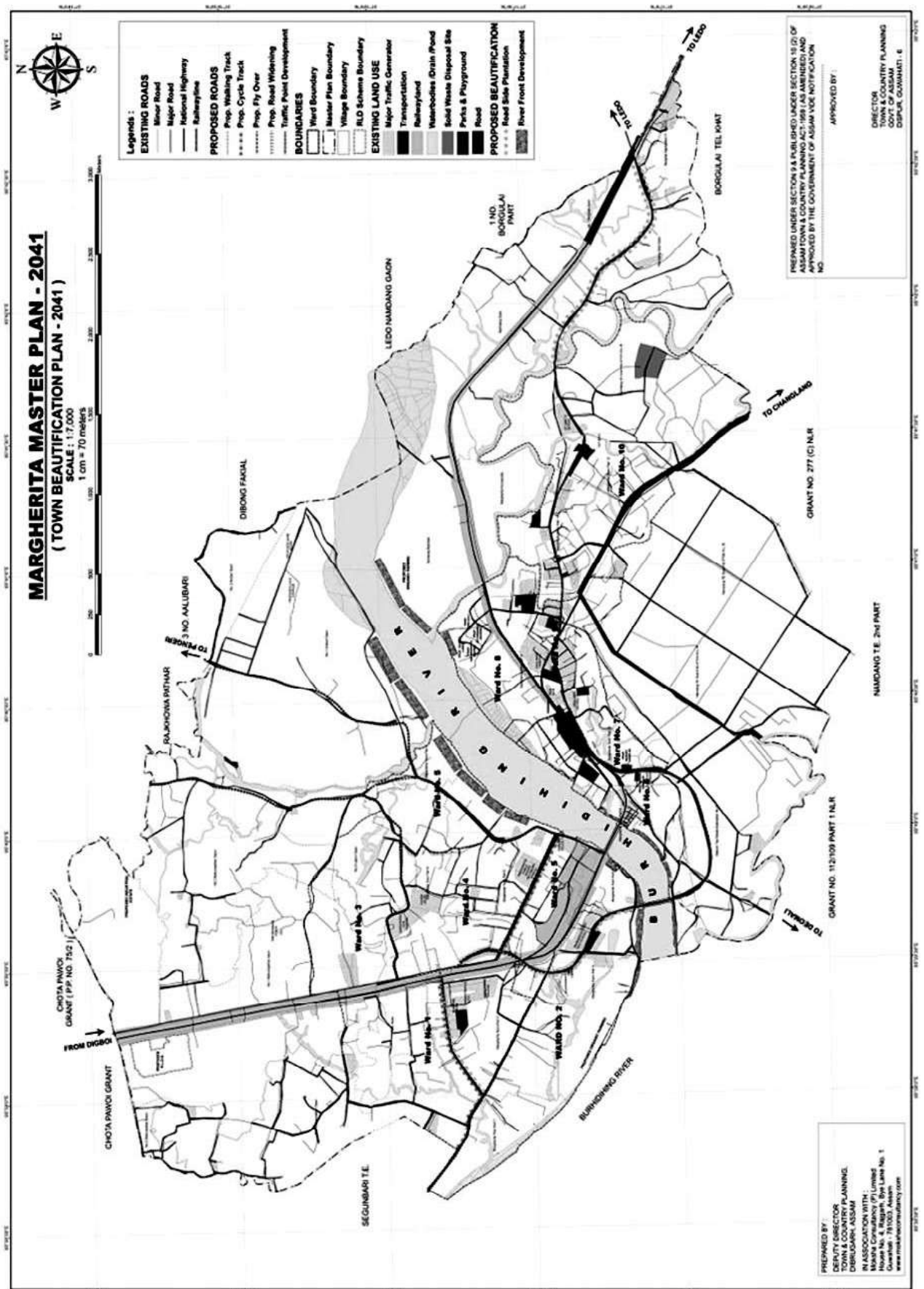












**ABBREVIATIONS**

<b>ANUABR</b>	Assam Notified Urban Area Building Rules – 2014
<b>AUW&amp;SB</b>	Assam Urban Water & Sewerage Board
<b>A.R &amp; T.C</b>	Assam Railways & Trading Company
<b>MMPA</b>	Margherita Master Plan Area
<b>DDMA</b>	District Disaster Management Authority
<b>DPR</b>	Detail Project Report
<b>MDMC</b>	Margherita Disaster Management Cell
<b>PPP</b>	Public Private Partnership
<b>SOP</b>	Standard Operational Procedure
<b>SDO</b>	Sub Divisional Officer
<b>URDPFI</b>	Urban and Regional Development Plans Formulation and Implementation
<b>CPHEEO</b>	Central Public Health and Environmental Engineering Organization
<b>HFL</b>	High Flood Level
<b>NDCZ</b>	No Development & Construction Zone
<b>RAZ</b>	Restricted Activities Zone
<b>MIZ</b>	Regulated Activities Zone Or Medium Impact Zone